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ASIAN PERSPECTIVES

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SOCIAL SCIENCE RESEARCH INSTITUTE
UNIVERSITY OF HAWAII
1967

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ASIAN PERSPECTIVES

VOLUME X

SOCIAL SCIENCE RESEARCH INSTITUTE
UNIVERSITY OF HAWAII
1967

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Editorial style conforms to specifications set forth for scientific publications in *A Manual of Style, Twelfth Edition, Revised, for Authors, Editors, and Copywriters* (Chicago and London, The University of Chicago Press). Spelling, with few exceptions, conforms to *Webster's Third New International Dictionary of the English Language, Unabridged.*

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EDITORIAL

Volumes X and XI of ASIAN PERSPECTIVES, an accumulation of regional reports and original papers received over a two-year period, have been apportioned into regional reports (Volume X) and original reports (Volume XI). The editing of two volumes concurrently has delayed publication considerably; however, Volume XI is overlapping Volume X in press and should appear quickly. Volume XII, a special volume on Southeast Asia, is now being edited and should follow shortly after Volume XI. I am also actively collecting material for Volume XIII.

Contributors will note from the previous page that much attention has been given to standardizing *AP* spelling and style specifications. Judging from authors' returned corrected pages for Volumes X and XI, I would say the most difficult modern spelling rule for archaeologists and anthropologists to become accustomed to is the use of capital letters for the proper names of periods and cultures (Pleistocene, Palaeolithic, etc.) but lowercase letters for their derivatives (e.g., pleistocene strata or palaeolithic adze).

Beginning with this issue, all articles will be published in English, and although we welcome original articles, much editing time will be saved if papers are submitted in English and prepared to *AP* style specifications.

In my editorial in Volume IX, I mentioned the formation of Asian Perspectives Hawaii to provide a legal basis for the publication of ASIAN PERSPECTIVES. Inadvertently, I failed to mention that we are indebted to Attorney John J. Uehara, who voluntarily worked out all arrangements for Asian Perspectives Hawaii and provided us with the necessary legal documents required for incorporation. We very much appreciate his help.

Wilhelm G. Solheim II

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Pervobytnoe proshloe V'etnama [The primitive past of Vietnam]. P. I. Boriskovskii. Reviewed by Chester S. Chard, University of Wisconsin.

New Light on Prehistoric China. Chêng Tê-k‘un. Reviewed by Kwang-chih Chang, Yale University.

The Study of Shifting Cultivation. Harold C. Conklin. Reviewed by D. E. Yen, Bernice P. Bishop Museum, Honolulu.

Symposium on Historical, Archaeological, and Linguistic Studies on Southern China, South-East Asia, and the Hong Kong Region. F. S. Drake, gen. ed. Reviewed by Kwang-chih Chang, Yale University.

Archaeology and Physical Anthropology in Oceania, Vol. I, No. 1. A. P. Elkin, ed. Reviewed by Richard Pearson, University of Hawaii.

True Stories of the Island of Lanai. Lawrence K. Gay. Reviewed by T. Stell Newman, University of Hawaii.

Prehistoric Research in Northwestern Punjab. Anthropological Research in Chitral. Paolo Graziosi. Reviewed by Hallam L. Movius, Jr., Peabody Museum, Harvard University.

Sarawak Museum Journal Special Monograph No. 1: Borneo Writing and Related Matters. Tom Harrisson, ed. Reviewed by S. Gill, University of Hawaii.

A Lost Civilization. The Mongols Rediscovered. Walter Heissig. Reviewed by Lawrence Krader, Syracuse University.

An Historical Atlas of China. A. Herrmann. Reviewed by Richard Pearson, University of Hawaii.

Japan Before Buddhism. J. E. Kidder, Jr. Reviewed by Richard Pearson, University of Hawaii.

A Jar Coffin Cemetery at Shinch‘angri, South-western Korea. Won-yong Kim.
Table of Prehistoric Sites and Remains in Korea, Won-yong Kim.
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Southeast Asian Tribes, Minorities, and Nations. Peter Kunstadter, ed. Reviewed by William G. Davis, University of California, Davis.

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Ältere und Mittlere Steinzeit: Jäger-und Sammlerkulturen. Handbuch der Urgeschichte I. Karl J. Narr, ed. Reviewed by Per Sørensen, Centralinstitute for Nordisk Asienforskning.

The Archaeology of the Palau Islands; An Intensive Survey. Douglas Osborne. Reviewed by Fred M. Reinman, California State College at Los Angeles.

Ancient China. Edward H. Schafer and the editors of Time-Life Books. Reviewed by Judith Treistman, Cornell University.

Studies in Prehistory. D. Sen and A. K. Ghosh, eds. Reviewed by Walter Fairserves, Thomas Burke Memorial Washington State Museum, Seattle.

Versuch einer Stilanalyse der Aufhängehaken vom Mittleren Sepik in Neu-Guinea. Reimar Schefold. Reviewed by Wilhelm G. Solheim II, University of Hawaii.

New Guinea: The Last Unknown. Gavin Souter. Reviewed by Edwin A. Cook, University of California, Davis.

Ts'ao Yin and the K'ang hsi Emperor: Bondservant and Master. Jonathan D. Spence. Reviewed by Ichisada Miyasaki, Kyoto University.

The Cranium and Maxillary Dentition of Austrapithecus (Zinjanthropus) Boisei. P. V. Tobias. Reviewed by A. T. Steigmann, Jr., State University of New York at Buffalo.

Contributors' Current Affiliations . . . .

ABBREVIATIONS

A	*Antiquity*, Cambridge
AA	*American Anthropologist*, Washington, D.C.
AJS	*Australian Journal of Science*, Sydney
AP	*Asian Perspectives*, Honolulu
APAO	*Archaeology and Physical Anthropology in Oceania*, Sydney
AR	*Anthropological Records*, University of California, Berkeley
BAE	*Bureau of American Ethnology*, Washington, D.C.
BDAA	*Bulletin of the Department of Archaeology and Anthropology*, National Taiwan University, Taipei
BEFEO	*Bulletin de l'École Française d'Extrême-Orient*, Paris
BIEAS	*Bulletin of the Institute of Ethnology*, Academia Sinica, Taipei
BMFEA	*Bulletin of the Museum of Far Eastern Antiquities*, Stockholm
BSEI	*Bulletin de la Société des Études Indochinoises*, Saigon
BSEO	*Bulletin de la Société d'Études Océaniennes*, Papeete
BSGI	*Bulletin de la Service Géologique Indochine*, Hanoi
BTLV	*Bijdragen tot de Taal-, Land- en Volkenkunde*, The Hague
CA	*Current Anthropology*, Chicago
FMJ	*Federation Museums Journal*, Kuala Lumpur
GR	*Geographical Review*, New York
IB	*Information Bulletin*, Pacific Science Association, Honolulu
JAS	*Journal of Asian Studies*, formerly *Far Eastern Quarterly*, Ann Arbor
JAOS	*Journal of the American Oriental Society*, New Haven
JEAS	*Journal of East Asiatic Studies*, Manila
JMBRAS	*Journal of the Malayan Branch, Royal Asiatic Society*, Kuala Lumpur
JPS	*Journal of the Polynesian Society*, Wellington, N.Z.
JRAI	*Journal of the Royal Anthropological Institute of Great Britain and Ireland*, London
JSO	*Journal de la Société des Océanistes*, Paris
JSS	*Journal of the Siam Society*, Bangkok
KK	*K‘ao-ku (Kaogu)*, Peking
KKHP	*K‘ao-ku-hsueh-pao*, Peking
KKTH	*K‘ao-ku-t‘ung-hsün*, Peking
KZ	*Kōkogaku Zasshi*, Tokyo
M	*Man*, London
MH	*Malaya in History*, Kuala Lumpur
MJTG	*The Malayan Journal of Tropical Geography*, Singapore

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Growth of a Prehistoric Time Scale: Based on Organic Evolution. William B. N. Berry. Reviewed by Christopher J. Durden, Texas Memorial Museum.

The Old Stone Age. François Bordes. J. E. Anderson, trans. Reviewed by Chosuke Serizawa, Tohoku University. Translated by Kazue and Richard Pearson, University of Hawaii.

The Archaeology of North Kona. Section I: Archaeological Surface Survey. Francis Ching, Jr. and Paul Rosendahl.

The Archaeology of North Kohala. A Progress Report on Archaeological Research. T. Stell Newman. Reviewed by Edwin N. Ferson, Jr., University of Arizona.

The Indianized States of Southeast Asia. G. Coedès. Walter F. Vella, ed. Susan Brown Cowing, trans. Reviewed by Shigeru Ikuta, Toyo Bunko. Translated by Richard Pearson, University of Hawaii.

Archaeologia Viva No. 1. Jean de Moreuil, ed. and pub. Reviewed by C. C. Lamberg-Karlovsky, Harvard University.

Ancient China: From the Beginning to the Empire. Jacques Gernet. Raymond Rudorff, trans. Reviewed by Cho-yun Hsu, Academia Sinica.

Archaeology in Western Samoa. R. C. Green and Janet M. Davidson, eds. Bulletin of the Auckland Institute and Museum, No. 6. Reviewed by Peter Bellwood, University of Auckland.

MNMV	*Memoirs of the National Museum of Victoria,* Victoria
MS	*Monumenta Serica,* Tokyo
MSGI	*Memoirs de la Service Géologique d'Indochine,* Hanoi
NAM	*North Australian Monthly,* Townsville, Queensland
NGS	*Nieuw Guinea Studiën,* The Hague
NZAAN	*New Zealand Archaeological Association Newsletter,* Wellington, N.Z.
O	*Oceania,* Sydney
PEFEO	*Publications de l'École Française d'Extrême-Orient,* Paris
PJS	*Philippine Journal of Science,* Manila
PM	*Pacific Islands Monthly,* Sydney
S	*Science,* Washington, D.C.
SA	*Scientific American,* New York
SMJ	*Sarawak Museum Journal,* Kuching
VTLV	*Verhandelingen tot de Taal-, Land- en Volkenkunde,* S-Gravenhage
W	*Walkabout,* Melbourne, Australia
WW	*Wen-wu,* Peking
ZFE	*Zeitschrift für Ethnologie,* Berlin
ZMRNH	*Zoologische Mededelingen Rijksmuseum van Natuurlijke Historie,* Leyden
ZVRNH	*Zoologische Verhandelingen Rijksmuseum van Natuurlijke Historie,* Leyden

International Congresses and Symposia

Received 18 March 1968

WILHELM G. SOLHEIM II*

FAR Eastern prehistorians are becoming more actively involved in international meetings. This broader interest could stem purely from the proliferation of international meetings, but hopefully, our greater involvement is the result of increased activity, better communication, and a greater awareness of our field on the part of the general public.

This report deals with eleven international conferences held during the last fifteen years and one to be held in 1971.

PACIFIC SCIENCE CONGRESSES

Eighth Pacific Science Congress Proceedings in Archaeology

The Fourth Pacific Science Congress, held in Batavia, Java, in 1929, led to the birth of the Far-Eastern Prehistory Association, and there has been a close bond between the Pacific Science Association and FEPA ever since. After three independent meetings during the thirties, the Fourth Far-Eastern Prehistory Congress was held jointly with the Eighth Pacific Science Congress in Manila in 1953. The total proceedings of this combined congress never appeared; of the papers on prehistory, less than half were included in the two volumes that were published. In 1963, H. Otley Beyer, the Convenor of the "Fourth Far-Eastern Prehistory and Anthropology Division of the Eighth Pacific Science Congresses Combined" turned over to me a number of the unpublished papers for publication in a special issue of *Asian Perspectives (AP)*. These were edited and turned over to the Hong Kong University Press in January 1965, to appear before the end of 1965 as Volume IX, Part 1. Several unexpected delays and then the change of publishers for *AP* resulted in the rescheduling of these papers for Volume X. Finally, to speed everything up, these papers have been published by the Social Science Research Institute at the University of Hawaii as Asian and Pacific Archaeology Series, No. 2, *Anthropology at the Eighth Pacific Science Congress,* Wilhelm G. Solheim II, editor. The papers which appear in this issue are included with information of other SSRI publications at the close of this volume.

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Tenth Pacific Science Congress Proceedings

The official proceedings and the papers presented at the first nine Pacific Science Congresses were published consecutively by the host country for each congress. But when the Tenth Congress met, it was recognized that the financial burden of publishing the total proceedings of the congress by the host country was so great that it was no longer feasible. As a result, the papers presented at the Tenth Congress, held in Honolulu in 1961, were published in many different journals or special publications; many of the special publications received a subvention from the Pacific Science Board of the United States. A number of these papers were published in *AP* v, 2. To help the researcher locate papers presented at the Tenth Pacific Science Congress, the Bishop Museum Press published an offset *Bibliography of Symposium Papers, Tenth Pacific Science Congress* (1966, 95 pp., $1.00). This book may be ordered from Bishop Museum Press, Honolulu, Hawaii 96819, U.S.A.

Eleventh Pacific Science Congress

A general report from Richard Pearson on the Eleventh Pacific Science Congress held in Tokyo in 1966 follows shortly after this paper, and it in turn is followed by a report from Tom Harrisson on the special primate symposium which followed immediately after the congress. Several resolutions of importance to prehistoric archaeology were approved by the Council of the Pacific Science Association and adopted at the closing General Meeting of the Eleventh Congress. The resolutions:

2.1. WHEREAS the five years since the Tenth Pacific Science Congress have been exceptionally productive in revealing the culture history of the Pacific area, and the papers and discussions at the 11th Congress reflect (a) a deeper understanding of the need for anthropological and interdisciplinary research, and (b) a greater awareness of the relevance of findings from one area to another in the Pacific,

2.2. RESOLVED that for the sake of clarity researchers be encouraged to designate areas in the Pacific as follows: Northeast Asia, Mainland Southeast Asia, Island Southeast Asia, Oceania, Australia, and the American Rim, and continue to focus on those regions of Oceania, Island Southeast Asia, and Mainland Southeast Asia which present the most critical gaps in our understanding of Pacific culture history.

2.3. RESOLVED that researchers interested in the culture history of the above areas (a) develop a revised and expanded list in the relevant disciplines of projects urgently required to close the important gaps, (b) encourage the development and financial support of coordinated interdisciplinary programs for carrying out these projects, (c) seek the cooperation of research and educational institutions to avoid duplication of effort, (d) hold regional conferences between Pacific Science Congresses as a means of promoting increased communication between investigators, (c) renew efforts to seek new outlets for publication of research, (f) encourage institutions which provide financial support to anthropological research to give special consideration to the Pacific in order to augment its meager resources.

2.4. RESOLVED that governments and research institutions in the Pacific be urged to encourage and to undertake research on disappearing cultures and changing peoples within the Pacific area including ethnographic and archaeological surveys, the making of films, ethnomusicology, folklore, and related field data in the whole range of behavioral sciences.

2.5. A coordinated program which is now well under way for the development of the Lower Mekong Valley in Southeast Asia will impound large reservoirs for hydroelectric power, navigation, irrigation, drainage, and flood control of the river and its tributaries. This program will drastically alter local ecologies in the four riparian countries of Laos, Thailand, Cambodia, and South Vietnam with resulting changes in fauna and flora; will result in the disruption of traditional societies long resident in particular areas; and will flood or otherwise destroy archaeological sites of former inhabitants. Research completed or soon to be completed in connection with this project has not officially included archaeological or cultural research or general ecological research. An archaeological salvage program recently completed in Thailand, which included two reservoir areas of the Lower Mekong program, discovered a number of important and previously unsuspected archaeological sites, but was not completed in time to survey much of the area or to excavate more than one of the sites before inundation in 1965–66. The Lower Mekong area has been inhabited for hundreds of thousands of years and was once part of the great Funan, Kambudja, and Siamese empires. Precedents for archaeological studies under similar circumstances are the River Basin Survey program in the United States of America and the Aswan Dam Project in Egypt (United Arab Republic). In view of the urgency of the situation:

2.6. RESOLVED that (a) an immediate field survey be made of the future reservoir and associated areas in the Lower Mekong Valley to locate archaeological sites which will be destroyed or otherwise become unavailable as a result of the development program and that from the data collected a detailed plan and budget be developed for a coordinated archaeological salvage program to be started as soon as funds can be found to undertake individual projects recommended; (b) an equally intensive research program be devoted to the study and recording of the local traditional living cultures of the Lower Mekong Valley before disruption occurs; (c) a biological and ecological survey of the Lower Mekong Valley regions concerned be carried out.

12.6. RESOLVED that every effort be made to encourage the preservation of antiquities, natural history sites, and archaeological sites and artifacts in all areas of the Pacific and that governments and museums and other educational institutes be asked to cooperate to this end.

A report of the full congress, including all of the resolutions, is to be found in the *Information Bulletin of the Pacific Science Association,* Volume XVIII, 4–6, 1966.

The ad hoc committee that worked out the names of the areas suggested in resolution 2.2 also presented tentative boundaries for some of these areas. These are as follows: Northeast Asia would extend from the thirtieth parallel of latitude to the north and would include Japan; Mainland Southeast Asia would extend from the thirtieth parallel of latitude (approximately the Yangtze River) to the south as far as Singapore, and from the Irrawaddy River to the South China Sea; Island Southeast Asia would include all the islands off the coast of Mainland Southeast Asia, from Formosa around to the Andaman Islands; Oceania would include New Guinea as well as Melanesia, Micronesia, and Polynesia, the Ryukyus and Bonin Islands being a part of Micronesia. These boundaries are not meant to be absolute; western Burma, Assam, and portions of eastern India no doubt should be included in Mainland Southeast Asia for some time periods, and western New Guinea very possibly should be a part of Island Southeast Asia for some periods.

During the meetings of the congress, a meeting was held of the Pacific Area Archaeology Program, which was organized at the Tenth Pacific Science Congress in Honolulu. The archaeologists decided to enlarge the program to cover more area and include fields other than archaeology. For this task a Standing Committee on Pacific Area Culture History was formed. (The committee has no official connection with the Pacific Science Association.) The committee members are serving tentatively and there are thoughts of some enlargement. Members suggested at the first meeting were: B. Biggs, K. Emory, R. Green, B. Palmer, J. Watson, D. Yen, and R. Force (all Oceania); C. Evans and T. Heyerdahl (American Rim); T. Harrisson and R. Soejono (Island Southeast Asia); D. Mulvaney (Australia); W. Solheim (Mainland Southeast Asia); and I. Yawata (Northeast Asia). Force was elected chairman and Green, secretary. Green's mailing address is Bernice P. Bishop Museum, Honolulu, Hawaii 96819, U.S.A.

A portion of the archaeology papers presented at the Eleventh Congress has been published by the Social Science Research Institute, University of Hawaii, as Asian and Pacific Archaeology Series, No. 1, 1967; the title is *Archaeology at the Eleventh Pacific Science Congress.* The contents are listed with other SSRI publications information at the close of this volume.

A major portion of the other archaeological papers presented at the Eleventh Congress came in the symposium, "Prehistoric Culture in Oceania," convened by Ichiro Yawata and chaired by Kenneth P. Emory. These papers were published by the Bishop Museum Press in 1968 under the same title, *Prehistoric Culture in Oceania*, edited by I. Yawata and Y. H. Sinoto. The symposium papers are listed later in this volume in Yosihiko Sinoto's regional report, "Polynesia: 1965–1966."

John A. Barnes, of the Australian National University, agreed to serve as the chairman of The Standing Committee for Anthropology and Social Sciences. Barnes accepted a permanent appointment in England in 1968, and the position of chairman has been filled by Cyril S. Belshaw, of the University of British Columbia, until the end of the Twelfth Pacific Science Congress. Within this committee, I have agreed to continue as chairman of the Subcommittee for Archaeology.

Twelfth Pacific Science Congress

The Twelfth Pacific Science Congress will meet in Australia in 1971. This congress is to be experimental in nature, and an attempt is being made to limit the number of participants. The Tokyo congress had a total of 5,906 registered members. Such great size is unmanageable. The Australian Academy of Science extended the invitation to hold the congress in Australia: The Academy's address is Gordon Street, Canberra City, Australian Capital Territory, Australia.

OTHER MEETINGS

Beyer Symposium

A two-day symposium in honor of the eighty-second birthday anniversary of H. Otley Beyer was held at the University of the Philippines on 12–13 July 1965. Beyer was the founder of Philippine anthropology and archaeology and the first to demonstrate that there were people in the Philippines before metal came into use. From his study of ceramics found in the Philippines, Beyer became an expert on Chinese and Siamese porcelains and stonewares. He died in December 1966. A short biography of him will appear in *AP* XII.

The papers presented during the symposium and a number of other papers have been published as a *festschrift* to Beyer and is titled *Studies in Philippine Anthropology (In Honor of H. Otley Beyer)*. It is divided into three parts. The first part, with four papers, is titled "H. Otley Beyer; An Introduction" and is concerned with the life and works of Beyer and his contribution to Philippine anthropology. The second part, with eight papers, is titled "Rethinking the Writings of H. Otley Beyer." It deals with some aspects of Beyer's work in archaeology, prehistory, social anthropology, and ethnobotany. The third part, titled "H. Otley Beyer and Contemporary Researches," is made up of fifteen papers on different phases of Philippine anthropology by former students and colleagues of Beyer. The book was published by Alemar's, 739 Rizal Avenue, Manila, Philippines, and costs U.S. $6.90, postpaid.

Symposium on Southeast Asian Archaeology

A symposium on the post-World War II results of Southeast Asian Prehistoric Archaeology was held in Pittsburgh at the annual meeting of the American Anthropological Association in November 1966. The symposium was sponsored by the Far-Eastern Prehistory Association, supported by the Wenner-Gren Foundation for Anthropological Research, and organized and chaired by me. Five papers were presented, each on a subarea of Southeast Asia. R. P. Soejono, head of the Prehistory Division of the Lembaga Purbakala dan Peninggalan Nasional of Indonesia, covered Indonesia; Tom Harrisson (in absentia), former curator and government ethnologist of Sarawak, covered Malaysian Borneo; Per Sørensen, of the National Museum of Denmark, covered western Thailand and northern Malaya; I covered eastern Mainland Southeast Asia and the Philippines; and Kwang-chih Chang covered Formosa. These papers will form the second part of *AP* XII, a special issue on the archaeology and prehistory of Southeast Asia. The first part of *AP* XII will be made up of several papers on the history of archaeology in Southeast Asia up to 1950.

East Africa and the Orient

The Conference on East Africa and the Orient, "Historical Problems of the Pre-Colonial Era," was held in Nairobi, Kenya, in April 1967. The conference was sponsored by the Harvard University Center for International Affairs and the British Institute of History and Archaeology in East Africa, in association with the University of East Africa. The convenors were H. Neville Chittick, of the British Institute, and Robert I. Rotberg, of Harvard. The majority of the participants were African specialists and the majority of the papers were on African subjects, but Asia was not slighted. The second day of the conference was concerned with "The Influence of Indonesia on Africa." The papers had been circulated in advance and so were not read, but discussed. These papers were: "Indonesian Maritime Civilizations through Sri Vijaya" by Anthony Christie, "Indonesians at the Origins of Madagascar and in Africa (Hypotheses, Data, and Problems)" by Hubert Deschamps, "Africa and Indonesia, the Author and His Critics" by A. M. Jones (in absentia), "La contribution austronésiennes à la culture Malgache: problèmes archéologiques" by Pierre Vérin, "From Southeast Asia to East Africa: An Archaeological Problem" by Wilhelm G. Solheim II, "Les anciens villages fortifiés des hauts plateaux Malgaches" by A. Mille (in absentia), and "Anthropological Reactions to the Problem of Malagasy Origins" by Aidan Southall.

The program on the third day was titled "Evidence of Cultural Connections." The first paper for discussion was by Paul Wheatley on "A Corner of the Western Ocean, Additional Notes on Chinese Relations with East Africa in Early Times." The other papers were not directly concerned with Asia. The papers will appear in a special publication.

The main conclusions and recommendations of the conference concerning Asia were: (1) the evidence for Indonesian contacts with East Africa is insufficient to enable any firm conclusions regarding the chronology (within comparatively wide limits) of such contacts, or the routes taken by the Indonesians; (2) the influence of the Maldives and Socotra on the history of the Indian Ocean Basin deserves investigation; (3) a further study of the genetics and diffusion of food crops—particularly bananas, cotton, and sugar—and domesticated animals would contribute greatly to the understanding of East Africa's early contacts with the remainder of the Indian Ocean basin; and (4) the conference should be reconvened in four years, hopefully with further participation of scholars from the countries concerned.

The conference was stimulating. The physical arrangements, the conference organization, the hospitality, and the surrounding country, with its varied wild game, was very pleasing. A fieldtrip to a palaeolithic site in the rift valley is memorable.

Early Chinese Art and the Pacific Basin

A symposium on "The Ch'u Silk Manuscript: Early Chinese Art and the Pacific Basin" was held in August 1967 at Columbia University. It was arranged by the Department of Art History and Archaeology of Columbia University with the sponsorship of The Sackler Fund to Promote Central Asiatic Studies. With the help of Douglas Fraser, L. Carrington Goodrich was the chairman and the principal organizer. Day-to-day administration of the meetings was attended to ably by Philip Mazzola and Miyeko Murase. The social portion of the symposium was as interesting as the meeting itself: There was a reception at the Metropolitan Museum of Art, Arthur M. Sackler Gallery, for a preview of the exhibition "Aspects of Ch'ang-sha Culture" and a special exhibit, preview, and reception at the Museum of the American Indian of "New Accessions Selected from the Sackler Collections."

The symposium participants were a group that seldom interact intensively, as they did here; about half were art historians and half, archaeologists. It was good to bring such a group together with a focus of mutual interest. A number of papers brought out heated discussion from both groups. In general, the two subjects remained distinct, but there was much communication; the published proceedings should be very interesting. The daily subject and the papers presented were as follows:

The Ch'u Silk Manuscript and Its Setting
Major Aspects of Ch'u Archaeology
    Kwang-chih Chang
The Culture of the Ch'u Region
    William Watson
The Ch'u Silk Manuscript and Other Archaeological Documents of Ancient China
    Noel Barnard
Suggestions Concerning the Ground of the Ch'u Silk Manuscript in Relation to Silk-Weaving in Pre-Han and Han China
    Jean Mailey
Aspects of the Calendar, Astrology, and Religious Concepts of the Ch'u People as Revealed in the Ch'u Silk Manuscript
    Jao Tsung-yi
The Character of the Twelve Gods in the Ch'u Silk Manuscript and Their Antecedents
    Hiyashi Minao

Bronze Age Influences on the Asiatic Mainland
Yün-an, Shih-chai-shan
    John Haskins
Western Elements in the Art of the Ch'u
    William Samolin
The Ch'ang-Sha Silk Manuscript Connected with Eurasian Comparative Archaeology
    Olov Janse
Decorative Concepts and Stylistic Principles in the Bronze Art of Tien and Dong-so'n
    Magdelene von Dewall
The Thraco-Cimmerian Phase in Central Asia: Evidence for the Pontic Migration
    Karl Jettmar

Neolithic Influences from the Asiatic Mainland
Neolithic Cultures in the Coastal Areas of Southeast China
    Kwang-chih Chang
Prehistoric Japan: A Survey of Cultural Development Down to the Late Jōmon Stage (ca. 2000 B.C.)
    Chester S. Chard
Neolithic Cultures of Thailand (and North Malaya) and Their Lungshanoid Relationship
    Per Sørensen

Prehistoric Pottery in Southeast Asia
Wilhelm G. Solheim II
Pottery in the South Pacific
Bruce Palmer

Out of Asia into the Pacific
Aspects of the Neolithic in Oceania: Melanesia with Special Emphasis on the Significance of Recent Archaeological Finds
Jack Golson
Aspects of the Neolithic in Oceania: Polynesia—with Special Emphasis on Religious and Related Structures
Roger C. Green
The Aboriginal Art of Taiwan and Its Implication for the Cultural History of the Pacific
Ch'en Ch'i-lu
Early Chinese Artistic Influences in Melanesia?
Douglas Fraser
Some Evidences of Dongson-Derived Influence in the Art of the Admiralty Islands
Mino Badner
Relations of a Chinese Embroidery Design: Eastern Europe, Western Asia, Southeast Asia (the Dongson Culture) and Melanesia
Carl Schuster

Asia, Oceania, and the Americas
Reflection of Bronze Age China in the Earliest Civilizations of the New World
Gordon F. Ekholm
Observations on Northwest Coast Indian Art and Similarities between a Few Art Elements Distant in Time and Space
Robert B. Inverarity
New World Perspectives on Pre-European Voyaging in the Pacific
Clinton Edwards
The Diffusion: As Explanation and As Event
Paul Tolstoy
American Metallurgy and the Old World
Robert Heine-Geldern

This symposium followed the International Congress of Orientalists and many of the symposium participants came directly from the congress. A congress report by Per Sørensen follows this report, as does the report on the International Congress of Maritime History at Beirut by Pierre Vérin.

International Conference on Asian History

The International Conference on Asian History at this writing is planned for August 1968 to be held at the University of Malaya, Kuala Lumpur, Malaysia. The conference will be divided into five sections, two of which deal with prehistory and protohistory. The president of the conference is Wang Gungwu and the organizer for the prehistory section is B. A. V. Peacock.

Eighth International Congress of Anthropological and Ethnological Sciences

The Eighth International Congress of Anthropological and Ethnological Sciences will be held in Japan 3–10 September 1968. General sessions, with volunteered papers, and a joint session on the "Ethnogenesis of Japanese People" will be in Tokyo and then the congress will move to Kyoto for the symposia, which are concerned with "Pleistocene Man in Asia," "Mesolithic and Neolithic Manifestations in the World," "Alignment of Prehistoric Cultures in the Arctic and Subarctic," "Megalithic Complex," and "Migration Problems of the Peoples and Culture in Oceania." Two other symposia pertinent to Asian archaeology are "Peoples of Shifting and Wet-Rice Cultivation: Comparative Study in Southeast Asia" and "Origin of Metallurgy."

The chairman of the Organizing Committee for the congress is Masao Oko and the program chairman is Ichiro Kondo. Membership fee is U.S. $15.00; associate membership is U.S. $10.00.

The International Congress of Maritime History at Beirut
5–10 September 1966

Received January 1967

PIERRE MICHEL VÉRIN*

HELD 5–10 September 1966, the International Congress of Maritime History at Beirut had been organized by the National Lebanese Commission for UNESCO, the International Commission of Maritime History, and the International Historical Association of the Indian Ocean. Though the general theme was largely orientated towards the societies and commerce companies, the Indian Ocean and Southeast Asia were not forgotten: from 50 reports and communications, at least 25 concerned these regions.

Work was divided into two sections: first, Antiquity and the Middle Ages; second, Modern and Contemporary Times.

ANTIQUITY AND THE MIDDLE AGES

In the Antiquity and the Middle Ages section, we followed with interest the indicated preponderance of Islamic influences in the Indian Ocean. One cannot understand this phenomenon without a knowledge of pre-Islamic navigation.

Le Rider, in his work on navigation in the Indian Ocean up to the Arab conquest, meritoriously presented a review of the principal works dedicated to this very poorly understood question; one grasped how the navigators coming from the Red Sea little by little cleared the maritime routes towards the Indies.

It is necessary to point out, however, that this nautical progress, known only from written sources, applies only to those merchants in contact with the eastern Mediterranean and with the Red Sea. We would be more interested to know when the traffic began on the Persian-Indian gulf, on one hand, and between Africa and Northern Madagascar, on the other. This problem contains all the enigma of pre-Arab and Arab navigation, particularly Indonesian navigation. We will never have written sources to solve this mystery, and the solution depends essentially on archaeological discoveries.

The report of C. Cahen and J. Aubin clearly presented the principal problems that the

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Islamic influence raises: first of all, the problems of itineraries; then those of participants, who were very diverse and not forceably Muslim; finally, the identification of products transported—especially their functions.

To what extent was there economic unity in the Indian Ocean? In any case, it is dangerous to speak of Islamic preponderance as a secure domination. None of the commercial kingdoms in India or in Africa maintained a war fleet—a fact which explains how these powers were taken by surprise when the Portuguese appeared. It is also necessary to realize the mentality of a cosmopolitan society composed of merchants traditionally disinterested in political events.

With a lack of archives (the documents of Geniza Library will not be published), it is difficult to formulate ideas of the life and associations of the merchants. Also, the report of S. Labib on the Karimi merchants in the Orient and on the books of the Indian Ocean is entirely original. The "rich" Karimi merchants, who were spoken of for the first time in the eleventh century, are characterized by their enterprising natures. The suppleness of the proceedings of rule favored exchanges, and the Karimi profited from deposit and transfer banks that were already established at the time of the Islamic expansion. Karimi commerce, which extended to China, faded at the end of the fifteenth century with the monopolization of exchanges by Arab potentates.

On a more "artisan" level, the sociological works of H. H. Serjeant reveal what is still navigation on the southern coasts of Arabia. According to customary principles, there is a very strict code in which the necessary solidarity of supply columns at sea is counterbalanced by the imperatives of commercial competition. No doubt, the convoys which reached Malindi, Kiloa, or Nosy Langani circulated according to the same rules. In any case, the role of the *dallal*, the middleman bound to the port that nourishes the visiting merchants and monopolizes his transactions, appears very similar to that which Ibn Batouta observed at Mogadicio, in the fourteenth century.

H. Grosset-Grange did work equivalent to that of Serjeant for navigations in the Red Sea and in the channel of Bab el Mandeb. There are yet interesting survivals such as that of "the chart for marking alignments" which singularily enlightened the obscure past of Arab navigations. Between two work sessions, the congress participants were able to appreciate a film by M. Adam that began with an ancient chart of the Red Sea and the coasts of Arabia. It permits understanding of what were techniques of navigation, of the pilots of the dhows. I have given an account of the progress of the systematic study of the Islamic areas in Madagascar. The first Portuguese visitors left us accounts of those who prospered at the beginning of the sixteenth century, but these establishments are also known by written native sources for the Southeast called *Sorabe* and for North Madagascar by already completed archaeological works (for Vohémar and Sambava), and those in preparation (for Nosy Boina and Nosy Langani).

Studies of the Islamic sections of Kenya (sections very similar to Islamic areas in Madagascar) are very important—particularly studies concerning the history of the Antalaotra establishments of the northwest side of Madagascar. According to Guillain, the colonists who settled at Langani, in the Bay of Mahajamba, and at Boeni, in the Bay of Boina, came from parts of Pangani and from Oueni in Kenya.

James Kirkman has been carrying out excavations on the east coast of Africa for more than twenty years. He is notably the discoverer of Gedi, an Islamized city which prospered about the fifteenth century in the north of Mombasa. In Mombasa, Kirkman restored Fort

Jesus; the excavations of the fort furnished an interesting sequence of late Islamic and Chinese potteries.

From Kenya studies we realize the importance of Chinese importings on the African coast: first, celadon and then later, blue and white Chinese. As for Madagascar, it is fitting to specify that these imports in no way signify the coming of Chinese merchants. Certainly, there was the prestigious voyage of Cheng-ho to the east coast of Africa, but the voyage was an exception.

The maritime connections of Southeast Asia was an equally important theme of this conference. In this perspective, M. Wang Gungwu demonstrated eloquently that the Chinese naval effort, developed between the tenth century and the arrival of the Europeans, was directed essentially towards Southeast Asia (Thailand, Champa, and the Indonesian archipelago). In the same sense, the works of J. Needham and of Jung Pao Lo insist that this prodigious Chinese scope during the tenth and the fifteenth centuries was as much in the domain of commerce as in naval construction. One sees then the apparition of great whale boats *(hai-yu)* used also by the foreigners who resided in China.

Unfortunately, no report has explained the hiatus which existed between the Chinese commercial zone of Asia and of Southeast Asia and the presence of the Chinese merchants in abundance at the other end of the Indian Ocean. I believe that it is necessary to take note of the capital role of Indian ports and of Birmany (notably, Martaban) that constituted the compulsory stages in this chain of successive re-exports.

MODERN AND CONTEMPORARY TIMES

The Modern and Contemporary Times section provided the occasion for listening to pertinent observations on the development of companies of commerce (D. C. Keswant L. Dermigny, Meilink-Roelofz, H. Furber)—companies related especially to India. In the next congress, it would be fitting to insist that delegates from the Mascarenes report on the development of commerce there for the same period and for the nineteenth century. Mlle Ly Tio Fane brilliantly expounded upon the fortune of the storehouse on the isle of France. Proposed by Mahéde La Bourdonnaye, the principle was adopted at the time of the retrocession of the island to the king by the Compagnie des Indes (India Company). The installation was especially effected by P. Poivre. But the duration of a free storehouse such as French Minister Turgot proposed did not fade until 1790, a fact which conferred a very important role to Port Louis.

Until the eighteenth century, the problem of Madagascan slave exportations towards the Mascarenes hardly interested historians. Also, one must acknowledge the efforts of J. Valette who studied certain sources that gave an idea of quantities exported annually. This pioneer work will have had the merit of revealing other sources which A. Toussaint, the archivist of the isle Maurice, will make known shortly. While awaiting these inedited documents, A. Toussaint describes a little-known maritime company of the nineteenth century, the "Anglo-French Indian Ocean Company," which allowed linkage of the Mascarenes to Aden. Organized by the famous adventurer Lambert, the company's activities were criticized for having tried to recruit pledges in Mozambique. From a report of A. Scherer on the meeting and lines of navigation, we gathered especially interesting observations on the coastal trade with Madagascar as well as the consequences of the expansion of sugarcane planting in the nineteenth century on the physiognomy of commerce.

Finally, one must rejoice that the Comoros were not forgotten. A. Bourde clearly evoked the Comorien diaspora in the neighboring territories since the middle of the nineteenth century and the anxieties of the emigrated minorities. The author seemed not to have at his disposal the pertinent observations of the recent socioeconomic studies of C. Robineau who pointed out the economic loss suffered by the Comoros when its children departed and did not send funds back to their native country.

As for the Far East, let us take up finally the inedited work of Mlle de la Roncière concerning the Carte de Ceylon of 1666, the study of K. G. Tregonning on the Compagnie de Singapore (Company of Singapore), the observations of W. E. Cheong regarding the Agency of Opium in China, the scrutiny of the Archives of the Senate of Macao by R. P. Armaiz, the analysis of the methods of navigation of the Dutch East India Company, etc. But especially, I single out the report of J. de Graaf on the acculturation in Indonesia in the seventeenth and eighteenth centuries as well as that of T. Takeda on the French taste for Chinese ceramics in the seventeenth century. Takeda detailed concisely the contents of the collection of Cardinal Mazarin. The knowledge of Chinese potteries exported in the seventeenth century is too precious for one to omit pointing out.

A Brief Account of the Twenty-Seventh International Congress of Orientalists

ANN ARBOR, MICHIGAN, U.S.A.

13–19 August 1967

PER SØRENSEN*

LIKE many other international conferences, the Orientalists' Congress, last held in Ann Arbor in 1967, has grown into a mammoth enterprise. The number of scheduled papers was so great that the organizers had to duplicate several sections, or sections of almost equal contents had been placed parallel, so that participants were required to plan carefully where to be or go to cover their fields of interest. The programming could have worked well had it not been for the organizers' failure to apply fixed times for single papers. It was generally impossible to estimate when a paper in a section would be read; many speakers did not appear, and their papers were then not only omitted, but replaced by the following speaker's, altogether causing great inconvenience to the participants. In too many cases the paper of interest had already been read when a participant arrived in a section. Apparently, conditions were best in the Near East sections, as these were completely reorganized at the beginning of the congress.

It was also unfortunate—and of course the organizers cannot be blamed for this—that many papers were of a rather low standard. It appeared that many participants proposed a title just to have an excuse to attend the congress or to have "credits" to refer to when applying for funds. So it seems to me that it is now a question whether it is at all worthwhile to continue supporting the great congresses in their present form; if so, perhaps consideration should be given to changing the contents of congresses to something more like symposiums with major papers presented and open to organized discussion, both for an appointed panel and for the floor. But perhaps one should take a further step and arrange to completely transverse scientific congresses with topics of mutual interest to a larger forum, e.g., on classification, methods, standards, etc.

To return to the International Congress of Orientalists, it is possible to present here only the briefest survey of the events. There were ten main sections as follows: Ancient Near

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East; Near East and Islamic World; South Asia in Ancient and Classical Times; Modern South Asia; Southeast Asia; Early China; Modern China; Japan; Korea; Central Asia and Altaic Studies. Meetings in these sections (and many subsections) were usually in the mornings, while in the afternoons there were generally four structured panels on different topics.

From the Southeast Asia section, mention should be made of R. Soekmono's paper on the reconstruction problems of Borobudur, M. C. S. Diskul's excellent paper on "The Evolution of Sukhodaya Bronze Hindu Images and Their Verification," D. K. Wyatt's paper on "Three Sukhodaya Oaths of Allegiance," Cunningham's paper on "Thai Traditional Doctors," and H. H. Prince Dhani Nivat's paper on "Adaptation of Nature to Art in the Ramakien." Unfortunately, most of the prince's interesting paper was completely ruined for the audience by the over-attentive television cameramen. None of the papers presented in the Early China section needs mention here, whereas W. Watson's paper on "Chinese Archaistic Bronzes," read in a panel on "Traditionalism and Innovation in Art" was most instructive.

It was a considerable loss to the congress that none of the Russian delegates arrived. The titles of their papers really looked interesting.

In addition to the main speakers, there were several special exhibitions which I should like to mention, especially the ceramics exhibition at the Museum of Anthropology, with selected examples of the Museum's collections of Chinese, Korean, Thai, and Annamese wares; further, the exhibition of paintings attributed to Tao-chi, which consisted of over 100 paintings from Europe, Japan, and the United States, allowed a study of the characteristics and development of the artist's style; finally, I should mention the exhibitions of Sassanian art and the photographic sculptures from Indian cave temples.

As always, the personal contacts established during the week appear to be the most valuable result of this congress.

The Eleventh Pacific Science Congress and the Meetings of the Far-Eastern Prehistory Association

Received 10 July 1967

RICHARD PEARSON*

THE Eleventh Pacific Science Congress was held at the University of Tokyo, Japan, from 22 August to 8 September 1966. Aside from its being the largest scientific congress ever held, the congress will long be remembered for its stimulating sessions and the kindness of the Japanese hosts. Approximately 120 papers were contributed in Section X (Anthropology), which was organized by Ichiro Yawata, formerly of Tokyo University of Education and now of Sophia University. Receptions, lunches, and study tours provided further abundant opportunities for exchanging ideas and establishing contacts.

"Prehistoric Culture in Oceania," a Symposium

During the first week of the Congress, in a special symposium entitled "Prehistoric Culture in Oceania," the participants were informed about many recent developments in the archaeology of Oceania:

Melanesia was discussed by J. Golson ("Archaeological Prospects for Melanesia") and Richard Shutler ("Prehistory of Southern Melanesia").

Japanese contributions to Micronesian archaeology were summarized by Peter Chapman, and a summary of fieldwork on Guam between July 1965 and June 1966 was contributed by Fred Reinman. A new aspect of Oceanic culture history—the archaeology of the Polynesian outliers in Micronesia—was discussed by Janet Davidson in a paper concerning the archaeology of Nukuoro.

Seven papers covering Polynesia were presented by Kenneth Emory, Stuart Scott, Roger Green, Jens Poulsen, Roger Duff, Yosihiko Sinoto, and Thor Heyerdahl:

Sinoto revised the Marquesan chronology, placing the initial phases forward by several centuries on the basis of recent excavations on Ua Huka Island. According to Sinoto, Marquesan prehistory probably began about the middle of the first millennium A.D. The Marquesas are now viewed as the center of dispersal in East Polynesia.

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Emory stated that present evidence shows that Hawaii was first reached by populations from the Marquesas and that contact with Tahiti occurred at a later period.

Heyerdahl contended that cultural and ethnobotanical evidence shows that the initial population of Easter Island arrived from South America. According to Heyerdahl, pollen of the South American fern *Polygonum acuminatum* was found in samples from the prehistoric levels of his excavations on Eastern Island as well as decomposed *Scirpus tatora*, the rush which Heyerdahl believes was brought from South America.

Roger Green presented a comprehensive developmental summary of the prehistory of Western Polynesia that may be of great significance for the culture history of other island groups.

Stuart Scott's paper covered fortifications and mounds from Upolu and Savai'i, Samoa.

Alexander Spoehr summarized the symposium with a paper entitled "Problems in Oceanic Prehistory: A General View."

Anthropological movies. Movies about Easter Island, Kapingamarangi, and Hawaiian archaeology were shown during the first week.

"Peoples of the North Pacific," a Symposium

A second symposium, "Peoples of the North Pacific," contained three papers on linguistics by Robert Austerlitz, Maurice Swadesh, and Shiro Hattori, and a paper by I. S. Gurvich entitled "Social and Economic Changes in the Extreme Northeast of Asia During the Last 50 Years." Papers on archaeology were the following:

"Aleuts, Descendants of the Bering Land Bridge Population" by W. S. Laughlin

"Traces of the Eskimo-Aleut Culture on the Pacific Coast of Kamchatka" by I. S. Vdovin

"The Anagula Unifacial Core and Blade Industry of 8400 B.P." by J. S. Aigner and W. S. Laughlin

"Two Millenia of Cultural Evolution of Bering Sea Mammal Hunters" by C. A. Arutyunov and D. A. Sergheev

"Blade and Burin Industries in Northwestern North America: Summary of Current Research" by W. N. Irving

"Some Problems of Prehistoric Chronology of Northeast Asia" by C. S. Chard

Prehistory and Archaeology Sections

During the second week, several sections on prehistory and archaeology were convened:

North Vietnam. P. I. Boriskovsky presented new palaeolithic material from Mount Do in North Vietnam, believed to be similar to the Tampanian and Patjitanian (although the overwhelming majority of the finds are flakes).

Southeast Asia, Australia, and the Ryukyus. Papers on the Philippines included a discussion of jar burials from the Kulaman Plateau, southwest Cotabato, by M. Maceda; a paper on the boat-coffin burials by Rosa C. P. Tenazas: a summary of excavations at Tabon Cave, Palawan Island, by R. Fox; and an outline of recent activities of the Philippine National Museum by A. Evangelista.

Antonio de Almeida contributed two papers entitled "The Prehistory of Portuguese Timor" and "Rock Paintings in Portuguese Timor." Tom Harrisson outlined new archaeological research in Niah Cave and elsewhere in Borneo, with special reference to the Early Stone Age. There can be no doubt that *Homo sapiens*, dated at Niah at more than 30,000 years ago, used chopping tools. These artifacts cover a time span from the time of the Tampanian and Patjitanian to as late as 30,000 years ago and should not be linked only with Pithecanthropines, according to Harrisson.

Wilhelm G. Solheim II presented a comprehensive summary of his excavation program in Thailand.

Richard Shutler contributed a survey paper on radiocarbon dates in Southeast Asia, Australia, and the Pacific. New discoveries demonstrating the existence of human settlements as early as 18,000 years ago in southern Australia, and earlier in the north, were discussed by D. J. Mulvaney.

Recent field work in the Ryukyus, including the excavation of a site possibly comparable to Ie Jima, which produced enigmatic early artifacts of deer bone, was discussed by H. Takamiya, while I presented recent radiocarbon dates from Ryukyu sites, ranging from 760 B.C. to A.D. 1010. I also contributed a paper on the prehistory of East Taiwan.

Japanese archaeological terms. H. Melichar discussed Japanese archaeological terms and their problems.

Those attending the congress were able to take advantage of several important exhibitions in Tokyo, including the treasures of the Tenri Museum, the sculptures of the Kofukuji Temple, and a comprehensive survey of Yayoi pottery, based on the collection of the Department of Archaeology of Meiji University. The Gakushuin Radiocarbon Laboratory and the archaeological laboratories of several universities within Tokyo were also visited. A tour of important prehistoric sites was arranged by Y. Sinoto, of the Bishop Museum.

A Primate Special Symposium No. 2 of the 1966 Pacific Science Congress

Received 25 October 1966

TOM HARRISSON*

FUNDAMENTAL IMPLICATIONS

THE Japan Monkey Centre is a new enterprise, staffed mainly by graduates of the University of Kyoto, placed near the large town of Inuyama, and served by an express monorail from Nagoya—the first stop of the Western Trans-Japan Superexpress out of Tokyo. The Nagoya Railway has provided much of the financing for establishing the centre, and the first proper national grant from the Japanese government is expected for 1967.

In many ways, the Centre is a model study and display setup. There is a very large collection of live primates: of these, the group of Siamang—astonishingly neglected apes—make up the finest unit in captivity today; the other good unit is at Frankfurt, Germany. I felt the handling of the orangutan *(Pongo pygmaeus)* left much to be desired; however, the staff are eager to listen and learn, and they accepted some suggestions for extensive improvements: for instance, orangs *must* have arboreal and leaf material, which the staff promised to implement soon. On the whole, the centre is outstanding in primate research.

In this fine setting, with Convener Kinji Imanishi, of the centre, setting the course, the Special Symposium No. 2 of the Pacific Science Congress started with a fair wind. In the first address, Dr. Yasuji Katsuki, of Tokyo Medical and Dental University, world renowned researcher in the auditory field, explained his method of conducting experiments on monkeys to determine their sensory—especially auditory—responses to sound stimuli. This work was the most recent in a series of Dr. Katsuki's experiments on the fish, frog, bird, cat, and monkey, which has shown a continuity of response in the animal kingdom to sounds with different frequencies and intensities. He expects similar responses exist in human beings. With slides, Katsuki demonstrated the placing of a tube for an electrode in the monkey's brain (while the animal was anaesthetized) and later (when the monkey was conscious) the connecting of the electrode to recording equipment. Since there is no sensation of pain in such procedure, experiments can be conducted on the monkeys without anaesthesia to get accurate measurements of the animal's healthy, conscious reactions to stimuli.

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The second opening paper, from Morris Goodman, of Wayne State University in the United States, set another note on "The Effects of Evolution of Primate Macromolecules." His brilliant pioneer work is opening up new horizons in our understanding of the background to the early hominids and palaeolithic man. For example, molecular analyses indicate the need to rethink widely the field of ape-man developmental procedures. The African apes (chimpanzee and gorilla) are in their protein groups closer to man *(Homo)* than the Asian apes (orang and gibbon). One implication here, archaeologically, strengthens the supposition that "men" originated in Africa and poses new questions on the position of *Gigantethropus* and *Pithecanthropus.*

Pure behavior was the theme of Clarence R. Carpenter's third lecture on "Naturalistic Communicative Behavior" in primates, which led to a further full day of 12 more papers which Carpenter admirably chaired. Carpenter is professor of zoology at Pennsylvania State University.

The range of other contributions was large, including parasitic morphological, dental, and other studies of only oblique interest to *AP* readers. The paper by Barbara Harrisson, of the Sarawak Museum, on the orangutan emphasized the important relationship between apes and man in the Early Stone Age of Southeast Asia and the gradual "conquest" of the former by the latter: the apes were driven back into the remote jungles, and now indeed they are threatened with extinction. These 20,000 years of conflict between the "boss guys of the forest" is richly documented in the food remains and folklore of Borneo caves and also Celebes (where no orangutan have been known in historic times).

Irwin Bernstein, of Yerkes Regional Primate Research Centre, reported an able field study of social behavior in the lutong, a leaf monkey (*Presbytis cristatus*). The leaf monkey's basic social unit is a single adult male with with multiple females and associated young, totally up to 51 individuals. In discussion, it was clear that this sort of "king male" social group is widespread among the higher primates, which possibly presented considerable complications to early man—to his pattern of cave dwelling, and to other of his (excavatable) activities. Another report by T. H. Struhsaker, of the University of California, on agression and dominance in monkey groups was to the same point.

Along similar lines was the admirable paper by Gordon Jensen, "Mother-Infant Monkey Behavior," which reported the observations of his research unit at the University of Washington in Seattle. The emphasis was upon the different reactions of the mother to the male or the female sex of the young. Again, discussion on and off the floor revealed a wide arc of characteristics which have barely been considered in their archaeological implications for man, as did a coauthored Japanese-U.S. paper by S. Azuma and Carl Koford about weather effects on mating behavior and sexual success!

Finally, I summarized 20 years of irregular field observation in Borneo rain forests, especially of small primates such as the tree shrews *(Tupaia),* tarsiers *(Tarsius),* and loris *(Nycticebus).* Here the capacity of small primates and also large apes to alter their habitats and vary their diets (unlike most arboreal monkeys), and in certain cases even to develop crepuscular or nocturnal mobility in food search, was seen largely as relevant to the human process up until pre-recent times, especially with reference to possible changes in human behavior over the past 40,000 years at Niah. A novel method of netting tarsiers and tagging them with numbered rings has been developed in Sarawak (since 1964). This may open up prospects for fresh studies in the wild of those primates about which little is known; until now, discoveries have been made only under laboratory conditions.

In broad conclusion, recent primate research suggests:

1. Man's unique position is physically challenged by new techniques of basic body constituent analyses; his position as a separate primate unit becomes more questionable.
2. Man's relationship in evolution is especially linked to prehistoric African primates.
3. Nonphysical, social criteria present other and, so far, less objectively measurable features which suggest certain behavior norms over a wide spectrum, probably with as yet unrecognized significance to early human groupings, breeding family size, movement, diet, etc.; monkey and other primate data have direct relevance to the behavior patterns of prehistoric man, his movements, social groupings, food, and other habits.

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CHESTER S. CHARD*

ABRAMOVA, Z. A.

1964 Paleoliticheskaia stoianka Druzhinikha na Enisee [The palaeolithic site of Druzhinikha on the Yenisei]. *Kratkie Soobshcheniia Instituta Arkheologii* 101: 69–73. Moscow.

Preliminary testing (1961–1962) at the northernmost palaeolithic site on the Yenisei, 100 km north of Krasnoyarsk. Although the finds correspond in general to the familiar Yenisei pattern, the author feels that there are typological grounds for considering it the oldest known site on the Yenisei. (Parallels are seen with Ust'-Kanskaia.)

1965 Krasnyi IAR—a new palaeolithic site on the Angara. *Arctic Anthropology* 3, 1: 122–128. Madison.

Report of 1959 excavations. Late Palaeolithic; author sees closest analogies with Talitskii site in the Urals.

ANDREEV, G. I.

1964 Issledovaniia v bukhte Valentin [Investigations in Valentin Bay]. *Kratkie Soobshcheniia Instituta Arkheologii* 97: 98–103. Moscow.

Preliminary report of 1961 fieldwork in the Lazo district of the Maritime Territory: the discovery of new sites and excavations in the Valentin-Peresheek site (544 sq. m uncovered) which precede the Shell Mound culture; the presence of local metallurgy (copper or bronze) was established at the site, but farming was not substantiated. (At least some of the picks and grinding stones had been used in preparing ore.)

1965 Priaslitsa s poberezh'ia Primor'ia [Spindle whorls from the coast of the Maritime Territory]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 186–190. Moscow.

Analysis and classification of the considerable number of decorated whorls recovered in the region during the past dozen years which represent a hitherto unexploited category of evidence which has temporal significance.

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* Professor, Department of Anthropology, University of Wisconsin.

ANDREEV, G. I., and ZH. V. ANDREEVA

1965 1959 fieldwork of the coastal section of the Far Eastern Expedition in the Maritime Territory. *Arctic Anthropology* 3, 1: 129–135. Madison.

Preliminary report of survey and excavations in Lazo, Ol'ga and Khasan districts in sites of Late Neolithic, Shell Mound culture, and Iron Age. Much new light was thrown on the local complexes of these periods.

ANDREEV, G. I., and IU. M. FOMIN

1964 Arkheologicheskie razvedki po srednemu techeniiu r. Podkamennaia Tunguska [Archaeological survey along the middle course of the Podkamennaia Tunguska River]. *Kratkie Soobshcheniia Instituta Arkheologii* 101: 94–98. Moscow.

Preliminary report on 1963 survey. The area seems culturally intermediate between Lake Baikal and western Siberia.

ANDREEV, G. I., IU. M. FOMIN, and P. P. PASHKIN

1965 Neoliticheskie poseleniia Podkamennoi Tunguski [Neolithic settlements on the Podkamennaia Tunguska River]. *Sovetskaia Arkheologiia* 1965, 3: 100–113. Moscow.

Describes collections gathered in 1961–1962 by geologists at several sites on the middle course of the river—stone and bone artifacts only. Closest analogies are seen with the Baikal Neolithic.

ANDREEV, G. I., and P. P. PASHKIN

1964 Pervye arkheologicheskie nakhodki v basseine verkhnego techeniia r. Chuni [The first archaeological finds from the upper Chunia River Basin]. *Kratkie Soobshcheniia Instituta Arkheologii* 101: 99–101. Moscow.

Stone artifacts found in 1963 by geologists in a previously unknown area. They differ from those of the neighboring Podkamennaia Tunguska both typologically and in stone used.

Antropogenovyi period v Arktike i subarktike

1965 [The Pleistocene period in the Arctic and subarctic]. Trudy, Nauchno-Issledovatel'skii Institut Geologii Arktiki 143. Moscow.

Includes papers by V. I. Kaiialainen and IU. N. Kulakov on the stratigraphy of the Yana-Indigirka coastal plain; O. M. Petrov on the palaeogeography of the Chukchi Peninsula; V. E. Garutt on the fossil elephants of Siberia.

AREMBOVSKII, I. V., and L. N. IVAN'EV

1958 Paleoliticheskaia masterskaia "Kliuchevaia Pad" v okrestnostiakh goroda Irkutska ["Kliuchevaia Pad," a palaeolithic workshop in the vicinity of Irkutsk]. *Irkutsk Universitet, Trudy* 14 *(Seriia Geologicheskaia* 2): 185–190. Irkutsk.

Brief report on stratigraphy and objects found in 1952–1953 at a late palaeolithic workshop site.

ARGUDIAEVA, IU. V.

1964 Chzhurchzhen'skaia cherepitsa [The Jurchen roof tile]. In *Arkheologiia i Etnografiia Dal'nego Vostoka*, pp. 106–113. Novosibirsk.

A study of Jurchen roof tiles as index fossils for dating medieval remains in the Maritime Territory, based on materials recovered during archaeological survey work in 1960.

ARKHIPOV, S. A., and O. V. MATVEEVA

1964 Antropogen iuzhnoi okrainy Eniseiskoi depressii [The Pleistocene of the southern

margin of the Yenisei depression]. *Institut Geologii i Geofiziki* 29. Novosibirsk.

Stratigraphy of the area around the Yenisei-Podkamennaia Tunguska confluence, based upon 1957–1961 fieldwork.

ARUTIUNOV, S. A., M. G. LEVIN, and D. A. SERGEEV

1964 Ancient cemeteries of the Chukchi Peninsula. *Arctic Anthropology* 2, 1: 143–154. Madison.

Preliminary report of 1957–1960 excavations at Uelen and the first season at Ekven.

BEFU, HARUMI, and CHESTER S. CHARD

1964 A prehistoric maritime culture of the Okhotsk Sea. *American Antiquity* 30, 1: 1–18. Salt Lake City.

Summarizes information available in Japanese sources as of 1961 on the Okhotsk culture of Sakhalin and Hokkaido and discusses its history and relationships.

CHARD, CHESTER S., and BARBARA PFORR MERBS

1964 The Alaskan situla ware: an east asiatic transplant to the New World? *Actas y Memorias XXXV Congreso Internacional de Americanistas* 1, pp. 11–16. Mexico City.

Similarity of this ware (alien to Alaska) to the Okhotsk pottery of Sakhalin and vicinity suggests a possible source.

CHARD, CHESTER S., and WILLIAM B. WORKMAN

1965 Soviet archaeological radiocarbon dates: II. *Arctic Anthropology* 3, 1: 146–150. Madison.

Lists all available dates since previous report, including Siberia (p. 150).

Chetvertichnyi period i ego istoriia

1965 [The Quaternary period and its history]. Moscow.

Includes papers by K. K. Flerov on the origin of Canadian fauna in connection with the history of the Bering land bridge; E. I. Ravskii on relations between glaciation and pluvial periods in northern Asia; N. V. Kind on absolute chronology of the main stages of the last glacial and postglacial periods in Siberia: S. M. Tseitlin on subdivisions of the last glacial period in Siberia; V. A. Zubakov on pleistocene deposits of the upper Yenisei Valley.

CHLENOVA, N. L.

1964 Tagarskii kurgan na r. Izykchul' [A Tagar kurgan on the Izykchul' River]. *Kratkie Soobshcheniia Instituta Arkheologii* 102: 119–126. Moscow.

Describes 1962 excavation of a kurgan in one of the most northerly Tagar cemeteries.

DAVYDOVA, A. V.

1960 Novye dannye ob Ivolginskom gorodishche [New data on the Ivolga fortified settlement]. *Trudy, Buriatskii Kompleksnyi Nauchno-Issledovatel'skii Institut* 3: 143–165. Ulan-Ude.

Describes 1958 fieldwork at this Hun site which confirmed the estimated date of the second century B.C.–first century A.D. and the presence of Chinese inhabitants among the population.

DEREVIANKO, A. P.

1965*a* New data on the archaeology of the middle Amur. *Arctic Anthropology* 3, 1: 136–141. Madison.

Initial notice of 1961–1963 fieldwork at sites of the Novopetrovka and Sergeevka neolithic complexes and the Iron Age. (Novopetrovka has subsequently been found not to be Mesolithic, as stated.) This work is superseded by the following publications:

1965*b* Novopetrovskaia kul'tura na Srednem Amure [The Novopetrovka culture on the middle Amur]. *Sovetskaia Arkheologiia* 1965, 3: 114–123. Moscow.

Fuller description of one of the two earlier neolithic cultures in the region, characterized by blade technology and various archaic traits. Originally classified as Mesolithic, but now known to include pottery of very primitive appearance, which the author feels may be the oldest yet found in the Soviet Far East. Sites are pit-house settlements. Blade arrowheads are conspicuous. The industry is considered very similar to Tadusha and is the probable source for the Daurian culture of Transbaikal.

1965*c* *Drevnie kul'tury Srednego Amura* [Ancient cultures of the middle Amur]. Leningrad. (Abstract of candidate's dissertation, Novosibirsk State University.)

Survey of premetal stages based upon 1961–1965 fieldwork, with discussion of chronology and cultural relationships.

DEVLET, M. A.

1964 Keramika pozdnetagarskikh kurganov Krasnoiarskogo raiona [Pottery from late Tagar kurgans of the Krasnoyarsk district]. *Sovetskaia Arkheologiia* 1964, 2: 205–210. Moscow.

Analysis of pottery indicates the components entering into this distinctive variant of Tagar culture, which is seen as the result of the mixture of incoming Tagar groups from Minusinsk with local tribes ca. 200 B.C.

1965*a* Bol'shaia Boiarskaia pisanitsa [The Bol'shaia Boiarskaia petroglyph]. *Sovetskaia Arkheologiia* 1965, 3: 124–142. Moscow.

Description and discussion of petroglyph in Minusinsk district, dated to transition from Tagar to Tashtyk periods. Although evidently executed for cult purposes, it is considered to realistically depict the life of the time.

1965*b* O kul'turnykh sviaziakh tagarskikh plemen [Cultural links of the Tagar tribes]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 240–242. Moscow.

Minusinsk petroglyphs show similarity of Tagar art with that of the Altai peoples and suggest direct cultural links between the Yenisei and the Near East in the Scythian period.

DIKOV, N. N.

1958 *Bronzovyi vek Zabaikal'ia* [The Bronze Age of Transbaikal]. Ulan-Ude.

Comprehensive survey and discussion of all available information.

1965 The Stone Age of Kamchatka and the Chukchi Peninsula in the light of new archaeological data. *Arctic Anthropology* 3, 1: 10–25. Madison.

Summarizes results of author's fieldwork 1956–1963, with particular reference to the stratified Ushki site on the Kamchatka River—one of the most important discoveries to date in Siberia.

DIKOVA, T. M.

1965 New data on the characteristics of the Kanchalan site. *Arctic Anthropology* 3, 1: 91–97.

Describes materials from further excavations at this site near the mouth of the Anadyr.

EVTIUKHOVA, L. A., and N. N. TEREKHOVA

1965 Plitochnye mogily Konduiskoi doliny [Slab graves of the Kondui Valley]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 244–248. Moscow.

1957–1958 fieldwork on Early Iron Age remains in Chita province.

GAL'TSEV-BEZIUK, S. D.

1964 O soedinenii Sakhalina s materikom i o. Khokkaido v chetvertichnoe vremia [On the links between Sakhalin and the continent and Hokkaido in Quaternary times]. *Izvestiia, Akademiia Nauk SSSR, Seriia Geograficheskaia* 1964, 1: 56–61. Moscow.

Concludes, on basis of faunal evidence, that Sakhalin was not connected with the mainland during the Lower and Middle Pleistocene, but that a connection existed during the Zyrianka and Sartan glaciations (Early and Final Würm) owing to eustatic fluctuations.

GAVRILOVA, A. A.

1964 Mogily pozdnikh kochevnikov u gory Sukhanikhi na Enisee [Burials of the late nomads at Mount Sukhanikhi on the Yenisei]. *Sovetskaia Arkheologiia* 1964, 2: 164–170. Moscow.

A 1960 find. Such post-tenth century A.D. burials are little known.

1965 *Mogil'nik Kudyrge kak istochnik po istorii Altaiskikh plemen* [The Kudyrge cemetery as a source for the history of the Altai tribes]. Moscow-Leningrad.

Definitive report on a famous site excavated in 1924–1925 but only briefly described hitherto. The main part of the site is ascribed to Turks of the sixth–seventh centuries A.D. There are also five graves from the Mongol period.

GOKHMAN, I. I.

1960 Antropologicheskaia kharakteristika cherepov iz Ivolginskogo gorodishcha [Anthropological characteristics of the crania from the Ivolga fortified settlement]. *Trudy, Buriatskii Kompleksnyi Nauchno-Issledovatel'skii Institut* 3: 166–173. Ulan-Ude.

Describes three adult crania of the Hun period.

GOLUBEVA, L. V., and E. I. RAVSKII

1964 O klimaticheskikh fazakh vremeni zyrianskogo oledeniia Vostochnoi Sibiri [Climatic phases during the Zyrianka glaciation of Eastern Siberia]. *Biulleten', Komissiia po Izucheniiu Chetvertichnogo Perioda* 29: 132–148. Moscow.

A reconstruction of the climate and vegetation of the Early Würm in the Baikal region.

GRIAZNOV, M. P.

1965 Raboty Krasnoiarskoi ekspeditsii [Work of the Krasnoyarsk expedition]. *Kratkie Soobshcheniia Instituta Arkheologii* 100: 62–71. Moscow.

Brief résumé of the most significant achievements of the 1960–1963 salvage work in the Krasnoyarsk reservoir area (the greater part of which lies in the Minusinsk Basin). A large number of sites were investigated, dating from the

Upper Palaeolithic to the eighteenth century A.D., and a number of these were extensively excavated.

GRIGOR'EVA, G. V.

1964 Novaia paleoliticheskaia stoianka Kokorevo VI na r. Enisei [A new palaeolithic site, Kokorevo VI, on the Yenisei]. *Kratkie Soobshcheniia Instituta Arkheologii* 101: 64–68.

Summary report of 1961–1962 excavation. Closest analogies are with Afontova Gora.

GRISHIN, IU. S.

1965 Stoianka Budalan v Vostochnom Zabaikal'e [The Budalan site in eastern Transbaikal]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 68–72. Moscow.

Located near Aginsk in the Onon River Valley. Culturally very similar to Shilka Cave.

GURINA, N. N.

1964 Raboty neoliticheskogo otriada Krasnoiarskoi ekspeditsii [Work of the neolithic section of the Krasnoyarsk expedition]. *Kratkie Soobshcheniia Instituta Arkheologii* 97: 88–97. Moscow.

Preliminary report of 1961–1962 excavations at the stratified Biriusa site (Palaeolithic to Bronze Age) 30 km above Krasnoyarsk, originally investigated in the 1920s. An additional 184 sq. m were uncovered. The neolithic complex is for the most part comparable to the Serovo stage of the Baikal Neolithic.

Istoriia i kul'tura narodov severo-vostoka SSSR

1964 [History and culture of the peoples of the northeastern part of the USSR]. Trudy, Severo-Vostochnyi Kompleksnyi Nauchno-Issledovatel'skii Institut 8. Magadan.

Collection of papers: those on archaeological subjects have all been translated into English. See Dikov 1965, Dikova 1965, Semenov 1965.

Istoriia Tuvy

1964 [History of Tuva]. 2 vols. Moscow.

Vol. 1, pp. 18–197, deals with the prehistory of Tuva or, in the case of later periods, utilizes archaeological materials to supplement historical sources.

JETTMAR, KARL

1964 *Die Frühen Steppenvölker*. Holle Verlag, Baden-Baden.

A volume in the series "Kunst der Welt," this is the best work to date on the Eurasiatic animal style over its entire geographical range, with discussion of development and sociocultural context. Richly illustrated; many color plates.

KAZANTSEV, A. I., and P. P. Khoroshikh

1962 Starinnye Buriatskie pogrebeniia na ostrove Ol'khon [Old Buriat burials on Ol'khon Island]. *Trudy, Buriatskii Kompleksnyi Nauchno-Issledovatel'skii Institut* 10: 179–188. Ulan-Ude.

Describes five burials excavated in 1958 on this island in Lake Baikal.

KHLOBYSTIN, L. P.

1964*a* Mnogosloinoe poselenie Ulan-Khada na Baikal [The stratified settlement of Ulan-Khada on Lake Baikal]. *Kratkie Soobshcheniia Instituta Arkheologii* 97: 25–32. Moscow.

A reanalysis of Petri's data in the light of the author's own recent investigations at this famous site. Concludes that Petri's findings are basically confirmed: in

modern terms, the site spans preceramic Neolithic to Iron Age. The stratigraphy also confirms Okladnikov's sequence of Neolithic stages in the Baikal region in large part.

1964*b* O drevnem kul'te nerpy na Baikale [An ancient seal cult on Lake Baikal]. *Kratkie Soobshcheniia Instituta Arkheologii* 101: 35–37.

Description and interpretation of a new find—a stone object with carving of a seal—ascribed to the first millennium B.C.

1965 Drevneishie pamiatniki Baikala [The oldest sites on Lake Baikal]. *Materialy i Issledovaniia po Arkheologii SSSR* 131: 252–279. Moscow.

Describes two sites found in 1963 on the northwest shore: Ludarskaia III (considered similar to Verkholenskaia Gora), and Ludarskaia I (early Holocene; compared culturally with Ust'-Belaia levels VI-IV). Other preceramic sites of the Baikal region are discussed, and a chronological sequence is proposed—primarily on typological grounds—with two main stages: Epipalaeolithic of Ludarskaia type; and preceramic Neolithic as exemplified in the lowest level at Ulan-Khada.

KHOROSHIKH, P. P.

1960 Naskal'nye risunki na poberezh'e ozera Baikal [Petroglyphs on the shore of Lake Baikal]. *Etnograficheskii Sbornik* 1: 45–58. Ulan-Ude.

Brief description and illustrations of petroglyphs discovered in recent years by the author on the west shore of Lake Baikal at Mt. Sakhiurte and Aia Bay.

KISELEV, S. V.

1965 Bronzovyi vek SSSR [The Bronze Age in the USSR]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 17–60. Moscow.

A posthumous survey article by the leading authority. Siberia is discussed briefly on pp. 57–60.

KISELEV, S. V., et al.

1965 *Drevnemongol'skie goroda* [Ancient Mongolian cities]. Moscow.

Three subjects are dealt with: the oldest cities (Khirkhira and Dën-terek) by Kiselev and L. R. Kyzlasov (pp. 23–119); Kara Korum by various authors (pp. 123–322); and the fourteenth century palace at Kondue by Kiselev (remainder of volume). Definitive reports of extensive postwar Soviet fieldwork.

KONOVALOV, P. B.

1962 K voprosu o diunnykh stoiankakh Zabaikal'ia [Contribution to the problem of the dune sites of Transbaikal]. *Kratkie Soobshcheniia, Buriatskii Kompleksnyi Nauchno-Issledovatel'skii Institut (Seriia Istoriko-Filologicheskaia)* 4: 84–91. Ulan-Ude.

Brief report of 1960 survey in Zaigraevo district: neolithic and iron age sites and remains from blowouts.

Korrelatsiia antropogenovykh otlozhenii severnoi Evrazii

1965 [Correlation of pleistocene deposits in northern Eurasia]. Moscow.

Includes papers by V. I. Gromov et al. on correlation of pleistocene deposits in northern Eurasia; M. N. Alekseev et al. on principles of pleistocene geochronology in eastern Siberia; R. E. Giterman et al. on periglacial vegetation of Siberia; A. R. Geptner et al. on correlation of upper pleistocene deposits in Kamchatka and Chukotka.

KOZYREVA, R. V.

1964 Neoliticheskoe poselenie Starodubskoe II na o. Sakhaline [The neolithic settlement of Starodubskoe II on Sakhalin]. In *Arkheologiia i Etnografiia Dal'nego Vostoka*, pp. 49–72. Novosibirsk.

Report of the 1955 excavations at what Soviet archaeologists consider to be the oldest known site in southern Sakhalin.

1965 K istorii kul'tury rakovinnykh kuch na o. Sakhaline [Culture history of the shell heap sites on Sakhalin]. *Materialy i Issledovaniia po Arkheologii SSSR* 131: 280–296. Moscow.

Based primarily on 1954–1955 excavations at Susuya and Verkhniaia Sannosava in southwestern Sakhalin and analysis of local museum collections (especially those from the Nevel'skaia site). Susuya has been previously published; materials from the other two sites are described here for the first time. All Sakhalin sites with shell heaps are considered to represent a single tradition with two chronological stages: early (Susuya, followed by Nevel'skaia), and late (Verkhniaia Sannosava, Rorei). The latter was replaced by the Ainu. Similarities and relationships between these sites and those of the mainland and Hokkaido are discussed. Beginning with the Nevel'skaia site, Sakhalin is very similar to the Okhotsk culture of Hokkaido.

KYZLASOV, L. R.

1964*a* O naznachenii drevnetiurkskikh izvaianii izobrazhaiushchikh liudei [The purpose of the ancient Turkish figures depicting persons]. *Sovetskaia Arkheologiia* 1964, 2: 27–39. Moscow.

Concludes that all such figures depict dead heroes and were associated with commemorative rites.

1964*b* Kurgany Tuvintsev [Tuvinian kurgans]. *Moscow Universitet, Vestnik (Seriia 9: Istoriia)* 19, 5: 82–91. Moscow.

Classification, summary description, and analysis of the known burial mounds of the ancestors of the modern Tuvinians. Dated to the sixteenth–nineteenth centuries.

1965*a* Novyi pamiatnik Eniseiskoi pis'mennosti [A new monument of the Yenisei script]. *Sovetskaia Etnografiia* 1965, 2: 104–113. Moscow.

Describes a new stele found in 1962 on the upper Yenisei in Tuva. Attributed to the ancient Khakass (early tenth century).

1965*b* O datirovke pamiatnikov Eniseikoi pis'mennosti [Dating of the monuments with Yenisei script]. *Sovetskaia Arkheologiia* 1965, 3: 38–49. Moscow.

Supplements the author's previous work on the subject with new data from Tuva.

1965*c* Kratkaia istoriia arkheologicheskogo izucheniia Tuvy [A brief history of the archaeological study of Tuva]. *Moscow Universitet, Vestnik (Seriia 9: Istoriia)* 20, 3: 52–70. Moscow.

Historical sketch of all previous work in the area, fully documented.

1965*d* Drevneishie orudiia gornogo dela na Altae [The oldest mining equipment in the Altai]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 165–168. Moscow.

Reports 1955 finds in Ust'-Kansk area of ancient copper mining activity with equipment that includes items of Afanasievo type. No mining remains of this period have previously been known.

KYZLASOV, L. R., and V. P. LEVASHEVA

1965 Sergei Vladimirovich Kiselev (Sergei Vladimirovich Kiselev). *Materialy i Issledovaniia po Arkheologii SSSR* 130: 7–16.

Obituary of one of the outstanding Russian archaeologists of modern times, especially known for his work in the Altai and Mongolia. Bibliography of his published works appended.

LARICHEV, V. E.

1964 Drevneishie pamiatniki kul'tury Mongolii [The oldest remains of culture in Mongolia]. *Priroda* 1964, 4: 94–98. Moscow.

Brief popular account of 1960–1963 discoveries of the Soviet-Mongolian Expedition.

1965 Neolithic settlements on the lower reaches of the Ussuri River. *Arctic Anthropology* 3, 1: 98–106. Madison.

Report of 1959–1960 survey and surface collection near Kazakevichevo in a hitherto unstudied region, with discussion of local culture history and relationships.

LARICHEV, V.E., and V.V. VOLKOV

1964 Must'erskie i neoliticheskie pamiatniki IUzhnoi Gobi [Mousterian and Neolithic remains from the south Gobi]. In *Arkheologiia i Etnografiia Dal'nego Vostoka,* pp. 147–189. Novosibirsk.

Comprises a complete history of Russian archaeological work in Mongolia (pp. 147–162) and of work by Mongolian scholars (pp. 162–168), followed by a detailed description (no illustrations) of collections of stone artifacts gathered in 1959 by a geologist near the Chinese frontier in the eastern Gobi. Two of the sites are considered typologically Mousterian (pp. 168–186), the other is a neolithic workshop (pp. 186–189). The authors debunk the alleged microlithic character of the Mongolian Neolithic.

LEVASHEVA, V. P.

1965 Ostatki drevnei orositel'noi sistemy v doline r. Abakana [Remains of an ancient irrigation system in the valley of the Abakan River]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 242–244. Moscow.

Irrigation canals have been the least studied archaeological feature of the Minusinsk district. Those described are no older than the fifth century B.C., but a more precise dating is not yet possible.

LEVIN, M. G.

1964 Ob antropologicheskom tipe drevnikh Eskimosov [The anthropological type of the ancient Eskimos]. *Trudy, Moskovskoe Obshchestvo Ispytatelei Prirody* 14: 262–269. Moscow.

Preliminary data on the human remains from the Uelen and Ekven cemeteries at Bering Strait. English summary.

MAKSIMENKOV, G. A.

1964*a* Novye dannye ob epokhe bronzy v Minusinskoi kotlovine [New data on the Bronze Age in the Minusinsk Basin]. *Kratkie Soobshcheniia Instituta Arkheologii* 101: 19–23. Moscow.

Summarizes the most important bronze age finds of the Krasnoyarsk expedition and their significance. Excavations far exceeded in scale anything hitherto carried out.

1964*b* Mogil'nik u Dolgogo ozera v g. Kansk [A cemetery at Lake Dolgoe in the city of Kansk]. *Voprosy Antropologii* 18: 132–134. Moscow.

Describes three neolithic burials uncovered during construction work on a little-known section of the Yenisei. The four crania recovered are described by M. M. Gerasimova in an accompanying paper (pp. 135–143).

1965*a* Okunevskaia kul'tura v IUzhnoi Sibiri [The Okunevo culture in southern Siberia]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 168–174. Moscow.

New data indicate that this culture represents a group of cattle-breeding, copper-using invaders who displaced the Afanasievo in Minusinsk and were subsequently themselves replaced by invading Andronovo.

1965*b* Vpusknye mogily okunevskogo etapa v afanas'evskikh kurganakh [Intrusive burials of the Okunevo stage in Afanasievo kurgans]. *Sovetskaia Arkheologiia* 1965, 4: 204–211. Moscow.

Identification of these burials as intrusive clarifies the inventory of the Afanasievo culture, with which they were formerly confused, and confirms the separate existence of an Okunevo culture.

MANNAI-OOL, M. KH.

1964 *Arkheologicheskie pamiatniki Tuvy* [Archaeological sites of Tuva]. Kyzyl.

Comprehensive popular booklet.

MARKOV, K. K., G. I. LAZUKOV, and V. A. NIKOLAEV

1965 *Chetvertichnyi period, tom I. Territoriia SSSR* [The Quaternary period, Vol. I. Territory of the USSR]. Moscow.

Succinct comprehensive survey and handbook of existing knowledge. Chapters 4 and 5 of Part I deal with Siberia.

MEDVEDEV, G. I.

1964 The place of the culture of Verkholenskaia Gora in the archaeological sequence of the Baikal region. *American Antiquity* 29, 4: 461–466.

Based on reanalysis of the existing collections plus reexamination of the site itself. On the basis of comparisons with other sites in the area as well as the geological situation, the author assigns Verkholenskaia Gora to the Mesolithic.

MICHAEL, HENRY N., ed.

1964 *The archaeology and geomorphology of northern Asia: selected works.* Arctic Institute of North America. Anthropology of the North: Translations from Russian Sources, 5. Toronto.

Contents: Introduction by C. S. Chard; Mal'ta by M. M. Gerasimov; Lena Palaeolithic by A. P. Okladnikov; Yenisei Neolithic by Okladnikov; Shilka Cave by Okladnikov; Ang-ang-hsi by V. E. Larichev; survey of Manchurian prehistory by Larichev; Shell Mound culture by G. I. Andreev; Kamchatka by S. I. Rudenko; five papers on Uelen by M. G. Levin et al.; plus five papers on geomorphology.

Mongol'skii arkheologicheskii sbornik

1962 [Collected papers on Mongolian archaeology]. Moscow. See review in *AP* VIII, 1: 141–147.

NECHAEVA, L. G., T. A. POPOVA, V. V. FEDOROV, and E. E. FRABKIN

1964 Arkheologicheskoe sobranie Muzeia antropologii i etnografii [The archaeological collection of the Museum of Anthropology and Ethnography]. *Sbornik Muzeia Antropologii i Etnografii* 22: 151–168. Leningrad.

Includes a useful list of the principal collections.

NOVGORODOVA, E. A.

1965 Lokal'nye varianty karasukskoi keramiki [Local variants of Karasuk pottery]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 181–186. Moscow.

An effort to distinguish local groups of the Karasuk culture through ceramic typology. Identifies two main unrelated complexes, each with several pottery types. Brief discussion of relationships and their significance.

OKLADNIKOV, A. P.

1960 Burkhotuiskaia kul'tura zheleznogo veka v iugo-zapadnom Zabaikale [The Burkhotui culture of the Iron Age in southwestern Transbaikal]. *Trudy, Buriatskii Kompleksnyi Nauchno-Issledovatel'skii Institut* 3: 16–30. Ulan-Ude.

Describes a group of burials of second–eighth centuries A.D. characterized by peculiar bone points imitating iron ones. The culture differs from the preceding Hun and succeeding Turk remains in the region.

1961 Kiakhtinskii muzei i ego vklad v arkheologiiu Zabaikal'ia [The Kiakhta Museum and its contribution to the archaeology of Transbaikal]. *Trudy, Kiakhtinskii Muzei Kraevedeniia i Kiakhtinskii Otdel Geograficheskogo Obshchestva SSSR* 18: 19–37. Ulan-Ude.

Historical sketch.

1964*a* Sovetskii Dal'nyi Vostok v svete noveishikh dostizhenii arkheologii [The Soviet Far East in the light of the latest achievements of archaeology]. *Voprosy Istorii* 39, 1: 44–57. Moscow.

Brief account for the general reader of results of recent work on the Amur and in the Maritime Territory.

1964*b* Iz istorii izucheniia drevneishego proshlogo Primor'ia [History of the study of the ancient past of the Maritime Territory]. In *Arkheologiia i Etnografiia Dal'nego Vostoka*, pp. 9–48. Novosibirsk.

Historical sketch of earlier archaeological studies.

1964*c* Drevnee poselenie na levom beregu r. Gladkoi [An ancient settlement on the left bank of the Gladkaia River]. In *Arkheologiia i Etnografiia Dal'nego Vostoka*, pp. 118–122.

Describes finds from test of site in the Maritime Territory. On typological and comparative grounds, concludes that it represents a period between the Late Neolithic (Gladkaia I) and Shell Mound cultures.

1964*d* Ancient population of Siberia and its culture. In *The Peoples of Siberia*, M.G. Levin and L. P. Potapov, eds., pp. 13–98. Chicago.

A better English version of this popular account which was originally published in 1956.

1964*e* *The peopling of Siberia and new palaeolithic finds at the Zeia River*. Moscow. [English text of paper presented to Seventh International Congress of Anthropological and Ethnological Sciences].

Describes very crude artifacts found in a seemingly old geological context of unknown age in the Amur Basin.

1964*f* Pervobytnaia Mongolia [Primitive Mongolia]. *Studia Archaeologica* 3, 8: 3–23. Ulan Bator.

A popular account of the Mongolian Palaeolithic.

1965*a* An ancient settlement in Pkhusun Bay. *Arctic Anthropology* 3, 1: 69–76. Madison.

Report of 1959 excavations on the northern coast of the Maritime Territory, uncovering a new and distinctive neolithic complex, possibly intrusive from the north.

1965*b* Palaeolithic finds in the region of Lake Orok-Nor. *Arctic Anthropology*. 3, 1: 142–145.

See original Russian publication in *AP* VIII, 1: 18–19.

1965*c* *The Soviet Far East in antiquity: an archaeological and historical study of the Maritime Region of the U.S.S.R.* Arctic Institute of North America. Anthropology of the North: Translations from Russian Sources, 6. Toronto.

Translation of *Dalekoe Proshloe Primor'ia* (Vladivostok, 1959), a comprehensive account spanning palaeolithic to medieval times by the leading authority, reflecting knowledge as of 1959.

1965*d* Mesoliticheskie nakhodki u sela Razdol'nogo v Primor'e [Mesolithic finds at the village of Razdol'noe in the Maritime Territory]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 62–64. Moscow.

Describes surface finds during the years 1953–1963 of typologically mesolithic cores and flakes on an eroded hilltop. Morphologically similar to Tadusha materials.

1965*e* Petroglify Sakachi-Aliana [The Sakachi-Alian petroglyphs]. *Voprosy Istorii Sovetskogo Dal'nego Vostoka (Tezisy Dokladov na Plenarnom Zasedanii IV Dal'nevostochnoi Nauchnoi Konferentsii po Voprosam Istorii, Arkheologii, Etnografii i Antropologii)* 1: 15–21. Vladivostok.

Discussion and analysis of petroglyphs on right bank of Amur below Malyshevskoe, first noted by Laufer. Author considers oldest ones to be neolithic.

Okladnikov, A. P., and V. E. Larichev

1964 Otkrytiia sibirskikh arkheologov [Discoveries of Siberian archaeologists]. *Vestnik Akademii Nauk SSSR* 34, 6: 71–78. Moscow.

Brief summary of field work carried out in 1961–1963 by archaeologists of the Siberian Division of the Academy of Sciences: Angara, Altai, Transbaikal, Amur, Maritime Territory.

Osnovnye problemy izucheniia chetvertichnogo perioda

1965 [Basic problems in the study of the Quaternary period]. Moscow.

Selected papers of a conference held in September, 1964, at Novosibirsk. Includes B. A. Onishchenko on glaciation in northeastern Siberia; S. A. Strelkov et al. on the problem of quaternary glaciations in Siberia; Z. M. Khvorostova on glaciation of the Indigirka-Kolyma area; R. E. Giterman and L. V. Golubeva on pleistocene vegetation history of east-central Siberia; E. I. Ravskii and S. M. Tseitlin on geological periodization of the Siberian palaeolithic sites. [An English translation of the latter was published in *Arctic Anthropology* 5, 1].

PSHENITSYNA, M. N.

1964 Novyi tip pamiatnikov III-II vv. do n.e. na Enisee [A new type of site of the third–second centuries B.C. on the Yenisei]. *Kratkie Soobshcheniia Instituta Arkheologii* 102: 127–134. Moscow.

Report of 1960–1962 excavations in a cemetery of the third transitional stage of Tagar culture (Tesinsk stage), previously not too well known.

RAVSKII, E. I., et al.

1964 *Antropogenovye otlozheniia iuga Vostochnoi Sibiri* [Pleistocene deposits in the southern part of Eastern Siberia]. Trudy, Geologicheskii Institut, 105. Moscow.

Covers the Sayan Mountains and Transbaikal. Detailed description of stratigraphy with discussion of history of flora and fauna.

RAVSKII, E. I., and S. M. TSEITLIN

1965 Geologiia eniseiskogo paleolita [Geology of the Yenisei Palaeolithic]. In *Stratigrafiia i Periodizatsiia Paleolita Vostochnoi i Tsentral'noi Evropoi,* pp. 200–228. Moscow.

A detailed restudy of the Yenisei sites from the viewpoint of geological age based on 1961–1962 field studies of the pleistocene deposits of the area. Supersedes the long-accepted views of V. I. Gromov.

REZANOV, I. A.

1964 *Voprosy noveishei tektoniki severo-vostoka SSSR* [Problems of recent tectonics in the northeastern USSR]. Moscow.

Covers the northern Okhotsk coast, Aldan Valley and Indigirka-Kolyma region. Includes discussion of glaciation and pleistocene stratigraphy as well as tectonic and seismic phenomena.

RIZHSKII, M. I.

1965 *Iz glubiny vekov* [From the depths of the ages]. Irkutsk.

Popular account of Transbaikal prehistory told in terms of archaeological discoveries.

ROKHLIN, D. G.

1965 *Bolezni drevnikh liudei* [Diseases of ancient men]. Moscow-Leningrad.

Based on evidence of pathology and injury in bones recovered from prehistoric burials. Siberia receives very limited coverage: Minusinsk Basin (Neolithic to fourteenth century A.D.), pp. 180–189; Transbaikal (second millennium B.C. to tenth century A.D.), p. 199; Altai (second millennium B.C. to tenth century A.D.), pp. 190–191; Tuva (fifth century B.C. to nineteenth century A.D.), pp. 191–193.

SEDIANKA, E. F.

1965 Tashtykskie pogrebeniia mogil'nika Barsuchikha IV [Tashtyk burials in the Barsuchika IV cemetery]. *Sovetskaia Arkheologiia* 1965, 4: 220–222. Moscow.

Describes burials excavated in recent years at this site in the Khakass Autonomous Oblast, showing differences in burial practices.

SEMENOV, A. V.

1965 The ancient culture of the Koryak National District. *Arctic Anthropology* 3, 1: 107–115. Madison.

Report of survey work on the coasts of northern Kamchatka and Penzhina Gulf.

SHAVKUNOV, E.V.

1960 K voprosu o datirovke srednevekovykh pamiatnikov Primor'ia [Contribution to the problem of dating the medieval sites of the Maritime Territory]. *Trudy, Buriatskii Kompleksnyi Nauchno-Issledovatel'skii Institut* 3: 174–193. Ulan-Ude.

A classification of decorated roof tiles of the P'o-hai and Jurchen periods and its application to the dating of medieval remains in the Soviet Far East.

1964 Bokhaiskie pamiatniki Primor'ia [P'o-hai sites in the Maritime Territory]. In *Arkheologiia i Etnografiia Dal'nego Vostoka*, pp. 84–105. Novosibirsk.

Elucidates the characteristic features of P'o-hai fortified settlements, based on 1960 investigations.

TSEITLIN, S. M.

1964*a* *Sopostavlenie chetvertichnykh otlozhenii lednikovoi i vnelednikovoi zon tsentral'noi Sibiri* [Comparison of quaternary deposits in the glaciated and unglaciated zones of central Siberia]. Trudy, Geologicheskii Institut 100. Moscow.

Detailed study of Lower Tunguska Basin (northern Yenisei Valley) and comparison with stratigraphic schemes for the Yenisei, Angara, and Lena-Viliui Valleys.

1964*b* Novey paleoliticheskie mestonakhozhdeniia v doline r. Enisei [New palaeolithic localities in the Yenisei Valley]. *Biulleten', Komissiia po Izucheniiu Chetvertichnogo Perioda* 29: 175–182. Moscow.

On the middle Yenisei between Kokorevo and Novoselovo. One (Novoselovo I) is a large site with abundant flint finds and mammoth remains. The geological situation is very complicated, but the author thinks the site may date to the final stages of the Zyrianka glaciation.

VADETSKAIA, E. B.

1964 Afanas'evskii mogil'nik na rechke Chernovoi [An Afanasievo cemetery on Chernovaia Creek]. *Kratkie Soobshcheniia Instituta Arkheologii* 101: 116–120. Moscow.

Preliminary report of 1962 excavations in the Chernovaia VI site, Yenisei Valley.

1965*a* Izobrazheniia zveria-bozhestva iz Khakassii [Representations of zoomorphic deities from the Khakass Oblast]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 174–176. Moscow.

Discusses dating and significance of such representations on stone in the Minusinsk area.

1965*b* O kamennykh stelakh epokhi bronzy v Khakassko-Minusinskoi kotlovine [Bronze age stone stelae in the Khakass-Minusinsk Basin]. *Sovetskaia Arkheologiia* 1965, 4: 211–219. Moscow.

Despite long study of the subject, there has been no agreement on the age and cultural provenience of these famous remains. New figured slabs found in an Okunevo culture cemetery in 1962–1963 throw new light on the problem.

VAINSHTEIN, S. I.

1964 Drevnii Por-Bazhin [Ancient Por-Bazhin]. *Sovetskaia Etnografiia* 1964, 6: 103–114. Moscow.

Describes 1952, 1957, and 1963 fieldwork at a fortress and palace on the Yenisei headwaters in Tuva thought to be those constructed in A.D. 750 by the Uigur Kagan Moyun-Chur, conqueror of Central Asia.

VASIL'EVSKII, R. S.

1964*a* Ancient Koryak culture. *American Antiquity* 30, 1: 19–24. Salt Lake City.

As revealed by excavations of recent years in the Magadan area. On comparative grounds, attributed to the first millennium A.D.

1964*b* Nakhodka metalla v poselenii Atargan na Okhotskom poberezh'e [A metal find in the Atargan settlement on the Okhotsk coast]. In *Arkheologiia i Etnografiia Dal'nego Vostoka,* pp. 114–117. Novosibirsk.

Iron-tipped harpoon and iron knife fragment, estimated to date from ca. 1000 A.D. Magadan area.

1965*a* Arkheologicheskie issledovaniia na Okhotskom poberezh'e letom 1964 g. [Archaeological investigations on the Okhotsk coast in the summer of 1964]. *Izvestiia, Sibirskoe Otdelenie, Akademiia Nauk SSSR (Seriia Obshchestvennykh Nauk)* 1965, 1: 120–121. Novosibirsk.

Brief summary of fieldwork at ancient Koryak sites in Magadan area.

1965*b* K istorii drevnikh kul'tur Okhotskogo poberezh'ia [Contribution to the history of the ancient cultures of the Okhotsk coast]. *Sovetskaia Etnografiia* 1965, 1: 117–123. Moscow.

Analysis of M. G. Levin's unpublished 1930–1931 collections from Zav'ialova Island (formerly Ol'skii Island). The materials are very different from those of the ancient Koryak sites in the same area and are assumed to be much older. Affinities lie with Late Neolithic cultures of interior Siberia.

VINBERG, N. A., et al.

1965 *Sovetskaia arkheologicheskaia literatura. Bibliografiia. 1918–1940* [Soviet archaeological literature. A bibliography. 1918–1940]. Moscow-Leningrad.

Complete bibliography, with author index and index of sites and cultures. Pp. 248–261 deal with Siberia (331 titles).

VOLKOV, V. V.

1964 Bronzovye kel'ty iz muzeev Mongol'skoi Narodnoi Respubliki [Bronze celts in the museums of the Mongolian Peoples Republic]. In *Pamiatniki Kamennogo i Bronzovogo Vekov,* pp. 176–180. Moscow.

Describes the 12 known specimens—all undocumented. Their importance lies in the fact that very little is known about the Bronze Age in Mongolia.

1965 Gobiiskii vsadnik [A Gobi horseman]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 286–288. Moscow.

Describes a petroglyph at Barun in the eastern Gobi, attributed to the ninth century A.D.

ZIABLIN, L. P.

1965 Arkhitektura kurganov chaatasa Grishkin Log [The architecture of the *chaatas*-type kurgans at Grishkin Log]. *Materialy i Issledovaniia po Arkheologii SSSR* 130: 282–286.

Remains of the Kyrgyz period investigated in 1960–1961 in the Krasnoyarsk reservoir area.

BOOK REVIEWS

GRACH, A. D.

Drevnetiurkskie Izvaianiia Tuvy.

Reviewed in *Sovetskaia Arkheologiia:* by L. R. Kyzlasov in 1964, 1: 349–355; by IA. A. Sher in 1964, 1: 355–357; reply by A. D. Grach in 1965, 3: 302–306; rejoinder by L. R. Kyzlasov in 1965, 4: 282–286.

Materialy i Issledovaniia po Arkheologii, Etnografii i Istorii Krasnoiarskogo Kraia.

Reviewed by G. A. Maksimenkov, *Sovetskaia Arkheologiia* 1964, 3: 337–340.

Korea

NEW LIGHTS ON KOREAN ARCHAEOLOGY

Received 23 September 1966

WON-YONG KIM*

THIS report covers a two-year period—from January 1964 to December 1965. During this time, the scope of Korean archaeology was greatly expanded as a result of discoveries that may represent the oldest cultures in Korea; the finds have been attributed to the Lower and Upper Palaeolithic Ages. Less important discoveries were made in other areas of Korean archaeology.

To make this report more comprehensive, general background information has been included, along with certain discoveries made before 1964. Because of the political discord between north Korea and south Korea, the original reports of north Korean archaeological discoveries were not available in south Korea, and I had to depend on secondary sources, such as abridged translations in Japanese periodicals.

THE PALAEOLITHIC ISSUE

In 1940, Nobuo Naora of Waseda University, Tokyo, reported several artifacts that were discovered at Tongkwan-chin in northeast Korea; he believed them to be palaeolithic in date (Naora 1940). The artifacts are two obsidian flakes and several antler wedges (*megaceros* and *Cervus*). However, this first claim of palaeolithic culture in Korea was dismissed by other authorities because the artifacts were not excavated by the reporter himself, but collected by students of other fields several years before the time of the report, and because the place of collection was stratigraphically disturbed (Fujita 1942), (Umehara 1946). It has been generally agreed upon, however, that a discovery of palaeolithic artifacts in Korea certainly was possible; similar finds have occurred in the neighboring Chinese continent and Japan.

The two new palaeolithic sites reported upon during the two-year period are the Sŏkchang-ri site and the Kul-p'o site. (See "Glossary of Anglicized Korean Words Used in Text," p. 53.)

The Sŏkchang-ri Site

The Sŏkchang-ri site was first discovered by Albert Mohr, of the University of Wisconsin,

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* Professor, Department of Archaeology and Anthropology, Seoul National University.

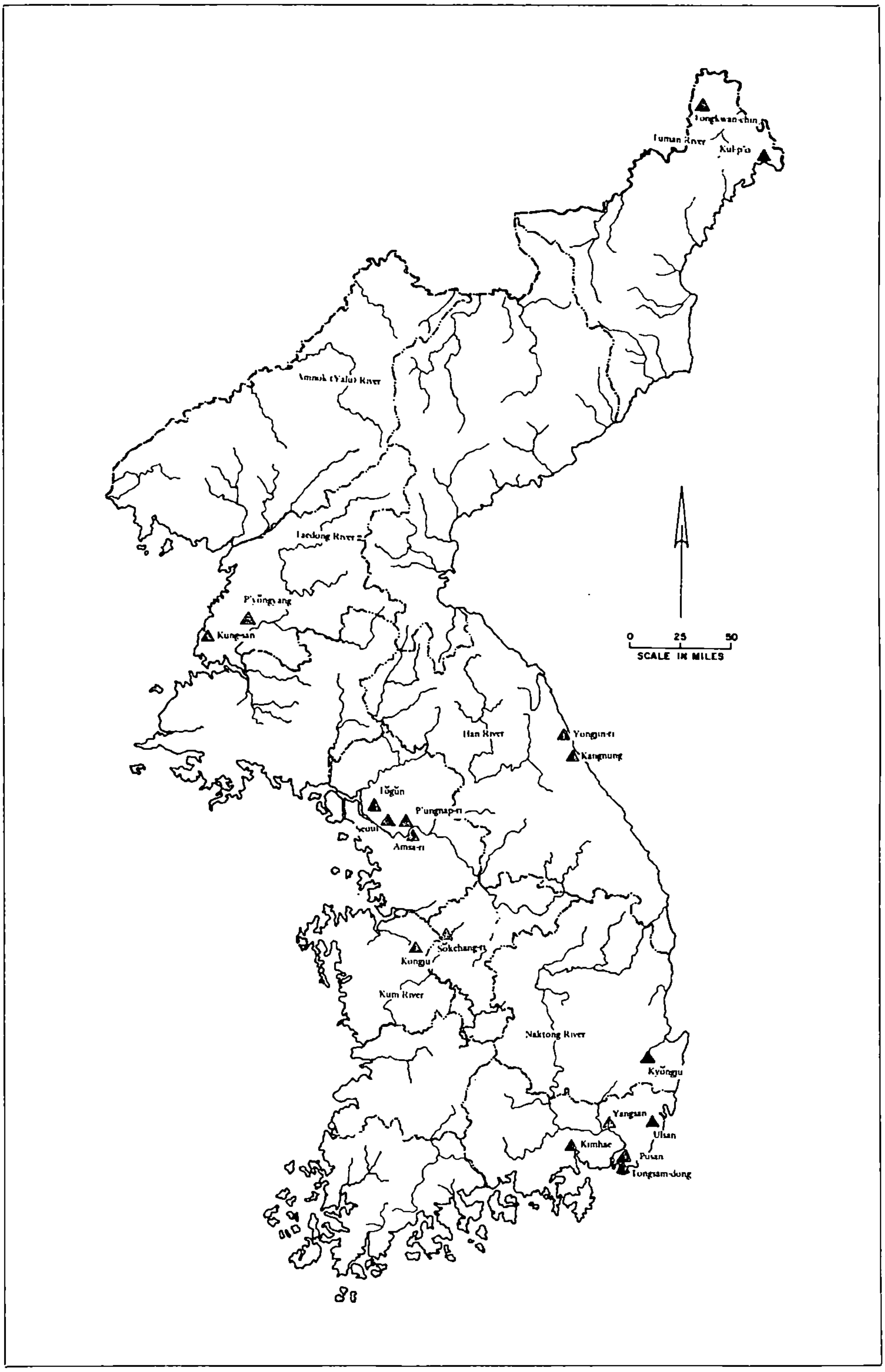

Fig. 1 Archaeological sites in Korea, 1966. (Map drawn by Alex Townsend.)

and his wife L. L. Sample in the spring of 1964. Sŏkchang-ri is a small village located on the north bank of the Kum River some 4 mi. to the east of the town of Kongju (see map, Fig. 1). There, at the foot of a river-eroded, terrace-like formation, the Mohrs picked up about a dozen chipped-stone implements and flake chips. At the time of the discovery, the couple were visiting scholars at Yonsei University in Seoul and were conducting a field survey, or reconnaissance, on Korean prehistoric sites. However, the Mohrs' plan for excavating the site did not materialize because of complications with a government agency, and the excavation took place in November of that year after they left Korea. The excavation was conducted by P. K. Sohn, of Yonsei University, for three seasons—from November 1964 to May 1966. It is reported that some 10,000 pieces of stone tools and spalls were collected through the three digs and that the lowest spot of discovery of stone artifacts was 10.20 m [33 ft. 4 1/4 in.] from the surface.

A full report of the excavation has not yet been published and a detailed account of the site and materials is not available, but there is a very brief progress report which was prepared by Sohn following the first season (Sohn 1965). Since the report is very short, I have translated its full text below:

> The Preceramic Culture of Sŏkchang-ri, Kongju
> By Pow-key Sohn
>
> It was Mr. Albert Mohr and his wife L. L. Sample, both visiting scholars at Yonsei University, who picked up four chipped-stone implements and about ten chipped-stone fragments, which had been washed out by a recent flood, at the puddled foot of a river-terrace on the bank of the Kumgang. On 20 May 1964, the Mohrs notified me of their important discovery and proposed that we undertake a joint excavation of the site. The History Department of Yonsei University had been planning an excavation and was looking for a suitable site. I inspected the site with Mr. Mohr and picked up several stone waste flakes and a blade almost 15 cm [6 in.] long. Based on these discoveries, the university decided to excavate the site and applied for the government permit to dig.
>
> However, it was 11 November 1964, almost six months after the date of application, that we were finally able to start the excavation. The digging took place from 11 November to 29 November and the results are as follows [see Plate I].

Strata	*Description and Artifacts*
Surface Layer	Two sherds of white porcelain of the Yi Dynasty (A.D. 1392–1910)
Clay Layer I	
Clay Layer II	
Gravel (angular) Layer 1	
Clay Layer III	Contains about 2 m × 1 m of burnt clay
Gravel (angular) Layer 2	Worked chips of porphyry
Clay Layer IV	Hand axes made of quartzite; porphyry and pebbles; chopping tools made of porphyry; pebble pestle and other chips; spalls of porphyry and porphyrite;

	also lensing of thin charcoal layer
Clay Layer V	Pebble pestles; micro-blades made of felsite; scrapers made of quartzite-hornstone; burin; hand axes; choppers and chopping tools; points; scrapers—all made of quartzite
Gravel Layer 3	
Clay Layer VI	Tools similar to those from Clay Layer V, but of bigger sizes and made of quartzite

> As seen above, tools made of porphyry and porphyrite (Plate II*a*) come from levels above the charcoal layer (in Clay Layer IV) and disappear below the charcoal layer. Microliths made of felsitic stones are found around the charcoal layer, whereas quartzite tools increase in number and size at greater depths. (See quartzite spalls, Plate II*b*).
>
> The entire complex seems to be of at least preceramic culture, since no single sherd was found among the cultural strata. Mr. Sangho Om, chief of the Geological Section of the Geological Service of the Republic of Korea, is of the opinion that the site is a developed river terrace.
>
> The stratification of cultural layers at this site provides valuable research materials. Details of the features and artifacts will be fully described in a future report with the carbon-dating results which will enable us to set up an absolute chronology of the strata.
>
> We may have to conduct a series of excavations before we come to any conclusions about the date and nature of the site. The significance of this first excavation is that we have obtained definite proof that there were prehistoric cultures in Korea preceding the Neolithic Age. I emphasize the need for extensive surveys and research in the future for further discoveries of similar sites.

Sohn did not give the exact measurements of each stratum, but from the section (see Plate I), Gravel Layer 1 appears to lie below the surface some 1.7 m [5 ft. 7 in.]; Gravel Layer 2 about 3 to 4 m [11 ft. 2 in.]; and Gravel Layer 3, 4 to 5 m [14 ft. 8 in.]. The water level is 6 m below the surface, and another 4 m of the deposit layer are submerged in water. The brownish clay is packed very hard, and to find small artifacts, considerable force was necessary to break up the clay lumps. No organic materials, except tiny crushed charcoal, exist in the entire strata. A majority of the stone artifacts are choppers and chopping tools fashioned by a few direct flakings on sizable flakes, or cores, obtained first by the block-on-block method. Bifaces exist, but the flaking is not applied all around the tool, and the flat platform on its top-end remains with its original cortex.

The Sŏkchang-ri area is actually a river valley flanked by two opposing mountain ranges whose highest peaks reach about 350 m above sea level. The southern reaches are rather steep slopes accommodating almost no arable or inhabitable space, but houses dot the gentle slopes at the foot of the northern reaches. The mountains are not well forested, and quartzite and porphyritic rocks are exposed on erroded mountain ridges.

The terrace-like formation beside the water seems to be the result of repeated landslides washed out by the water and accumulated on the spot. The strata contain huge amounts of unabraded stones, but there are almost no river-worn pebbles. The ancient knappers must have come to the open river bank where they could find suitable nodules and cores with little effort.

In May 1965, following the first season, another cutting was made to the left of the first cutting. According to Sohn's verbal information, some 700 stone artifacts were recovered during the excavation. Near the basal layer, he also came across what is believed to be a "flaking floor" that was scattered with huge amounts of spalls and chips around block-anvil stones.

The third excavation took place in May 1966, at which time a third pit was dug north of the first cutting. The vertical pit proved to be very productive; altogether, some 10,000 human-worked pieces were collected. According to Sohn, at least 40 percent of the pieces are of clearly recognizable shapes. The stone artifacts are similar to those from the previous two cuttings, but a considerable number of microliths made of felsite were collected at the first two clay layers. I had no chance to view the microliths, but Sohn is inclined to attribute them to the Mesolithic Age. Several neolithic comb-pottery sherds were said to have been collected from the sandy surface layer.

To avoid misinformation on the Sŏkchang-ri cultures, since I have not examined or studied all of the stone artifacts, I prefer not to make comments or inferences. In general, however, I believe the stone industry of Sŏkchang-ri may be divided into two main traditions: a microlith-blade (felsite) tradition of the upper layers and the lower chopper—chopping-tool (quartzite) tradition. Sohn seems to assign the upper layers to the Mesolithic and Upper Palaeolithic Ages and the lower layers to the Middle and Lower Palaeolithic stages; but it is too early to make any conclusion on typology and the relative depth of the deposit layers. We may have to wait for the geological analyses of the site area and the carbon-dating results, which I understand the University of California laboratory currently is computing. The major problem in this case is the lack of true quaternary geologists in Korea who can cooperate with archaeologists in palaeolithic studies. Yet, the discovery of the Sŏkchang-ri site and the excavation of it have aroused suffiicent interest among scholars of related fields for the study of the Palaeolithic Age on the Korean peninsula.

I am grateful to Pow-key Sohn for his permission to use the illustrations in this report and for other verbal information. I hope to present a more detailed account of the Sŏkchang-ri cultures covering the stratification, typological, and technological considerations of the artifacts when Sohn's full report is published. [The Radiocarbon Test Laboratory of Atomic Energy Research Institute of Korea has just produced a date of 30692±3000 B.P. from charcoal from Clay Layer IV (July 1969).]

The Kul-p'o Site, Northeast Korea

In the autumn of 1962, at the bottom of a neolithic layer at the village of Sŏp'ohang near Kul-p'o, a field team from the Institute of Archaeology and Folklore, Academy of Social Sciences of North Korea, headed by Yuho To, discovered a discoidal hand axe 10×8×3.8 cm [4×3 ¼×1 ½ in.] made of marble (Fig. 2).

The team had been digging the neolithic layer since the summer of 1960, and they were immediately aware of the significance of the hand axe because of its resemblance to the palaeolithic implements from neighboring Osinovka in the Soviet province of Maritime. The next April (1963) the group returned to the site and excavated more palaeolithic tools made of shale, quartzite, and pegmatite. Some of the tools were collected at the surface. The deposit layer is widely distributed and two layers—an earlier one mostly with quartzite tools and a later one mainly with silicified shale tools—are to be recognized within the palaeolithic deposits. The team named the whole culture Coulporien (Kul-p'orian) which is accordingly subdivided into Kul-p'o I and Kul-p'o II.

A brief preliminary report on the site was published by To in 1964 (To 1964) and a Japanese translation was printed in *Kōkogaku Zasshi (KZ)* [Journal of the Archaeological Society of Nippon, Tokyo] (To 1965). The present account is based on the Japanese translation.

The Kul-p'o site is located on the slope of a low hill facing a sea-lake. The area underwent an upheaval of land during the Early Recent period, and as a result, two terraces are recognized on the slope. The exact location of the site was not given in the report, but the stratigraphy begins from the top as follows:

I. Surface: 15 cm [6 in.]
II. Dark-brownish fine sand: 40 cm [15 ¾ in.]
III. Dark-bluish brown sandy clay: 25 cm [10 in.]
IV. Yellowish-brown clay containing iron dioxide, which suggests a tropical climate: 6 cm [2 ¼ in.]
V. Dark-yellowish clay containing small pebbles: 40 cm [15 ¾ in.]
VI. Clay containing angular and worn pebbles: 90 cm [2 ft. 11 ¼ in.]
VII. Thick stratum with clay and pebbles in alternating layers: 110 cm (3 ft. 7 ⅛ in.]

Stratum V mainly produced shale implements representing the Kul-p'o II period, and the marble hand axe that was described above also came from this layer.

Quartzite tools are from Stratum VI which is assigned to Kul-p'o I.

Neolithic artifacts are discovered at Strata II and III, and Stratum VII is sterile.

During the summer season of 1963, what is believed to be a knapper's atelier was discovered in the Kul-p'o I layer. A large block of porphyrite (Diam. 92–95 cm and 35–40 cm thick) was discovered near what may be a porphyrite hammer stone, and around them were some 50 or more pieces of quartzite spalls. Two groups of porphyrite were also located nearby, and there was a rectangular enclosure formed by piled-up porphyrite to a height of 15 cm [6 in.]. However, the measurement of the enclosure is not given.

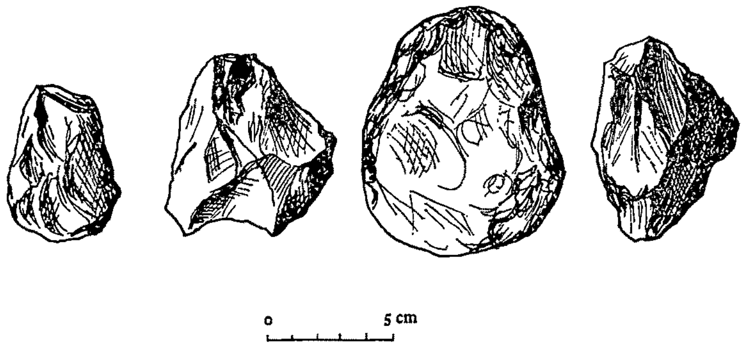

Fig. 2 Stone implements from Kul-p'o II, northeast Korea. The marble hand axe discovered in 1960 is second from right.

Stone tools from the Kul-p'o II (Upper) deposit are mostly made of shale, and except for one discoidal biface (Fig. 2), others are all irregular flakes and cores. Some have a few secondary chippings on both sides, but in general, unifacially worked flakes are predominant.

Artifacts from Kul-p'o I (Lower) are choppers, chopping tools, and other flake tools (Fig. 3). As in Kul-p'o II the technique was "unifacial." Pebbles were said to have been used for choppers, but no illustration is given in *KZ* (To 1965).

The unifacially worked flake-tool tradition parallels Chinese palaeolithic tools in basic trends, and in the case of Kul-p'o II, even the material (shale) corresponds to the Ting-ts'un culture.

The reporter seems to compare Kul-p'o I with Mousterian, but proposes that Kul-p'o II should fall within the scope of the Middle Palaeolithic cycle; he plainly admits that such attribution is based on typology alone and that support is yet to come from geology and other natural sciences. But, despite these facts, the similarities in technique and materials between the tools of Kul-p'o I and the basal layers of Sŏkchang-ri call for our attention. I expect that someday, with more discoveries of similar sites, we may be able to identify various stages of palaeolithic cultures in Korea and set up a standard sequence seriation and chronologies.

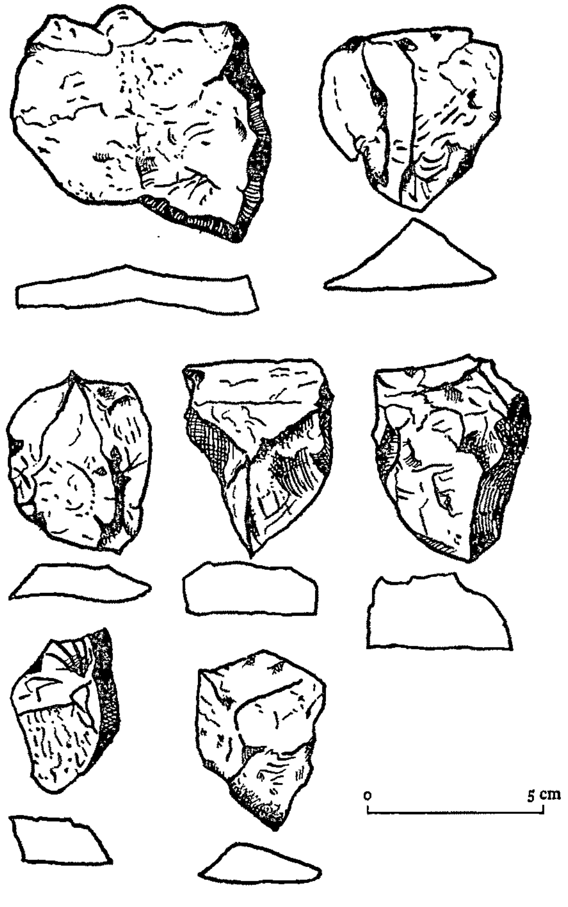

Fig. 3 Stone implements from Kul-p'o I.

THE NEOLITHIC AGE

Korean Neolithic is represented by the so-called comb-pattern pottery culture. Sites related to the culture complexes are spread over the lowlands, especially around river reaches and sea shores.

The Kung-san Culture

In northwestern Korea, the tradition is best demonstrated by the Kung-san culture (Shin 1964; Fig. 4). Kung-san is located on the west coast just north of the mouth of the Taedong River. Two phases are recognized in the Kung-san culture.

Phase I: Round- or pointed-bottomed pottery with straight-mouthed rims. Surface decorations are of impressed, incised, gouged, scratched (or dragged) short parallel-slanting lines arranged in a horizontally or vertically placed herringbone pattern. But the zone around the mouth is provided with different kinds of decoration consisting of tiny imprints grouped into several horizontal lines.

Among the other tool inventory are polished stone axes with rectangular or lenticular sections; polished, triangular, stone arrowheads; antler hoes; and perforated sickles made of boars' tusks. The saddle querns also are characteristic tools.

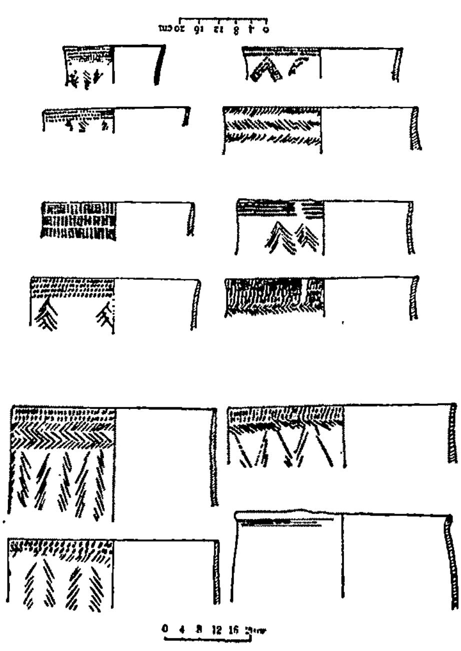

Fig. 4 Comb-pattern potteries from Kung-san, northwest Korea.

Phase II: The emergence of flat-bottomed pottery with straight-mouthed rims as in Phase I shapes. Decoration is also changed into a series of parallel wavy lines or concentric semicircles—impressed tiny circles probably made by reeds or the small long bones of birds.

The tool kit of the Phase II people was basically the same as that of the Phase I people, except that antler hoes are replaced by stone hoes.

The Amsa-ri Culture

On the central-west coast, the Amsa-ri culture is represented by the Han River comb-pottery complex (Plate III*a*). The two phases of Kung-san are also recognized in Amsa-ri potteries. But in Amsa-ri, adze-axes and other cutting tools made of river pebbles are more dominant than polished implements (Plate III*b*). A large flake was detached from a pebble by a hammer stone and both pieces were used as implements: the flake, as a knife or scraper and the remaining core, as an axe or chopping-tool (after several rough retouches were made along the edges).

Typical comb-pottery sites have not been found as yet in the southwestern coast. This may be owing to the sinking of land in that area which causes the submergence of coastal sites.

Tongsam-dong Site

The comb pottery reappears in considerable numbers on the southeastern coast around the port of Pusan. Best known among them is the Tongsam-dong site—a seaside shell mound on Yong-do (Yong Island) just across from the Pusan port.

Tongsam-dong pottery is basically of the Amsa-ri type, but varieties also exist that resulted from contacts with northeastern pottery and, possibly, with that of western Japan (Plate IV*a*). Spouted vessels and long-necked pots are particularly noteworthy. There are also vessels without surface decoration, and the ceramic picture of the Tongsam-dong site is quite complicated.

In 1964 Albert Mohr cut a trench into the Tongsam-dong site.Among the artifacts he collected were a polished, semilunar stone knife from the comb-pottery layer and sherds that contained vegetable fibers from the basal layer: both were of particular importance. The stone knife is derived from the Chinese Lungshan prototype and is one of the characteristic implements of bronze age Korea. We must await Mohr's report for any conclusion, but if the knife indeed had come from the original comb-pottery stratum, adjustments should be made in the future to our present knowledge on horizontal, as well as vertical, relationships between the neolithic comb pottery and the bronze age plain pottery. I myself had picked up a few semilunar chopping tools made of schist at a comb-pottery shell mound at Shin-do (Shin Island) off Korea's central-west coast in 1958. These implements should be restudied from a different angle.

The vegetable fiber in the sherds is not the result of an accidental mixing, but was deliberately tempered. Such "fiber pottery" is notable among early Jōmon pottery of neolithic Japan. Carbon-tested dates of the Early Jōmon period of Japan range from 3150±400 B.P. to 7290±500 B.P. (Kamaki 1965, Table of Jōmon Chronology). Comb pottery of Korea is believed to have influenced Sobata pottery of Kyushu, Japan, which is a local variety of Jōmon pottery of the late Early period (Kim 1962). But, if the fiber pottery of Tongsam-dong were really a Korean version of its Japanese counterpart, the first wave of influence might have come from Japan prior to Korean influence upon Sobata pottery. This last view was personally expressed to me by Teruya Esaka of Keio University, Tokyo, in early 1966. Whatever the case, I am anxious to read Mohr's full report on the excavation.

The Hamgyŏng Pottery Group

Comb-pottery sites are dotted along the east coast up to the Ulsan area but, from there they completely disappear until far up the northeastern coast. The northeastern complex, or the Hamgyŏng pottery group (Hamgyŏng is the provincial name of that area), is characterized by flat-bottomed pottery with a much diminished decorated zone. The classic herringbone pattern does exist, but the majority of the lines are horizontal rows of scratched, slanting dots. The clay is collodial and tempered with grit, whereas in the other groups mentioned above the clay is sandy and tempered with mica, soapstone, and sometimes with asbestos. There are also meander-like designs formed by parallel lines filled with short lines and dots. Influences from neighboring Maritime in the Soviet Union are obvious. Stone implements accompanying the Hamgyŏng group are a combination of polished and chipped varieties. The polished stone variety includes the spearhead, the flat axe, the elongated, and the leaf-like arrowhead; almost all are made of gray slate. For the chipped varieties, local obsidian was extensively used to make triangular arrowheads and other microliths, apparently under the influence of the Manchurian microlithic tradition.

Yŏngjin-ri Site

In 1964, a new comb-pottery site was discovered about halfway between the Pusan group of the southeast and the Hamgyŏng group of the northeast. The site is Yŏngjin-ri, near Chumunjin on the central-east coast; it was also discovered by Mr. Mohr. Two test pits were excavated, one by Mohr in April 1964 and the other by Messrs. Hyo-jai Im and Yung-hwa Chung, then seniors at the Department of Archaeology and Anthropology, Seoul National University. The site occupies a vast area that extends from a low seaside hill towards the shore line across a wide sand beach. The deposit layer at the hillside started from around 2 m below the surface—Mohr's pit—but at the sand shore the deposit layer starts from the surface with varied depths of 40 to 60 cm [15 ¾ in. to 23 ½ in.]—Im and Chung's pit (Im 1966).

The deposit layer at the beach is not stratified, and judging from the report, it seems to be a "drift" deposit which originated from the hillside dwelling site. Comb pottery here is a mixture of the west-coast type and the northeast-Hamgyŏng type. For instance, the clay is the colloidal northeastern type and so are the coarsely-executed dotted horizontal rows that appear on some of the sherds. There are, however, the characteristic slanting-lattice patterns consisting of single crossing lines that appear on later Amsa-ri pottery of the west coast. This intermixture of north-bound west-coast culture and south-bound northeastern culture is very interesting.

A small polished axe made of sandstone pebble was the only polished stone tool, and the majority of the others were scrapers and cutting tools made of quartzite flakes; a few were of sandstone. Sharp cutting edges were obtained by striking off a large flake from a ridged core or flake which had flat, natural cleavage planes. Sometimes,a prepared striking platform was observed. Such quartzite flakes are the first to be reported from comb-pottery sites. But I have recently noticed similar quartzite flake tools from the plain-coarse pottery sites in the west coastal regions (Kim 1966), and they seem to have been handy tools for all-purpose use. The relationship of the tools between those of comb pottery and of plain pottery is yet to be studied.

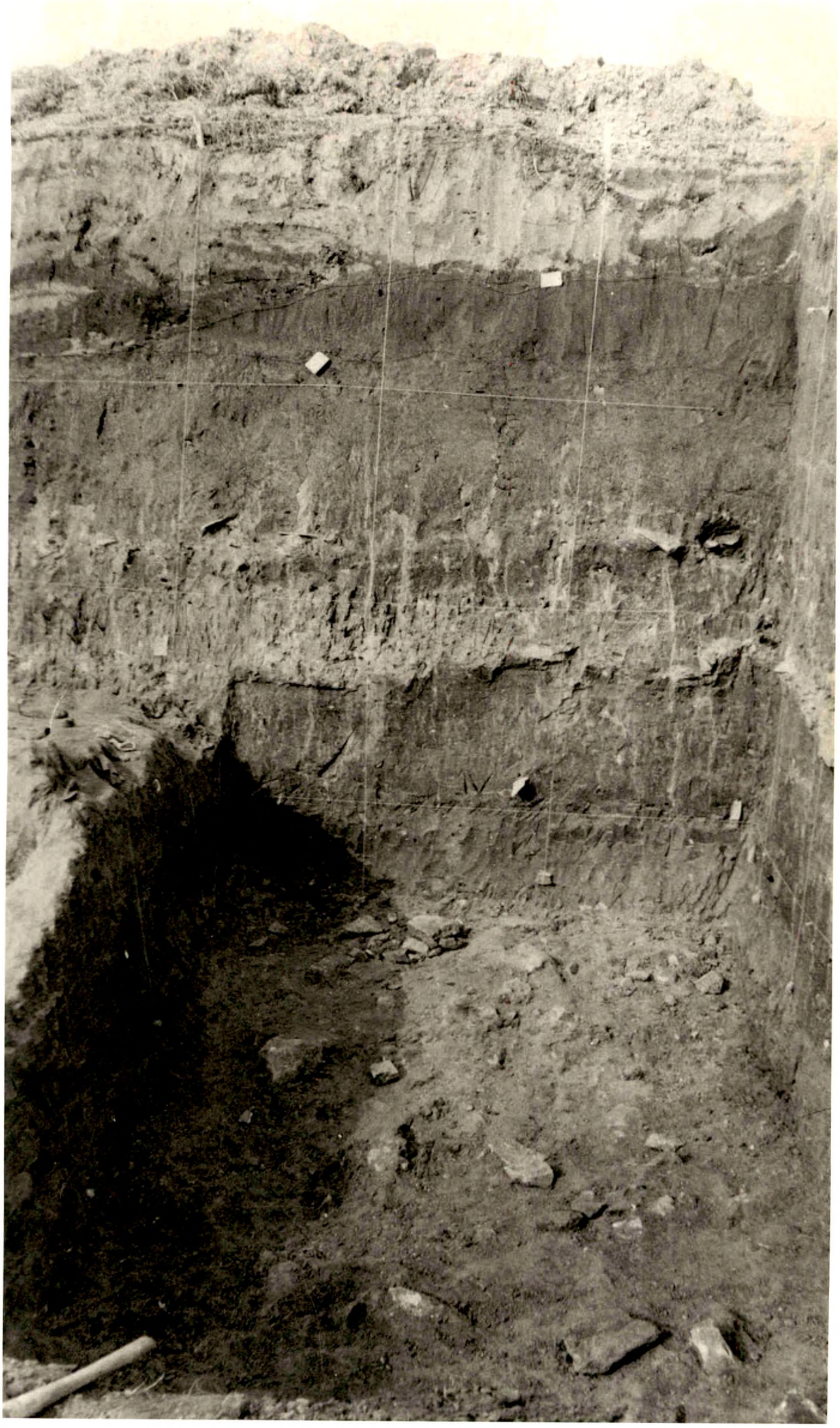

Plate I Sŏkchang-ri site, central-west Korea, showing the cutting in 1964. The floor is Gravel Layer 3 about 4.5 m from the top.

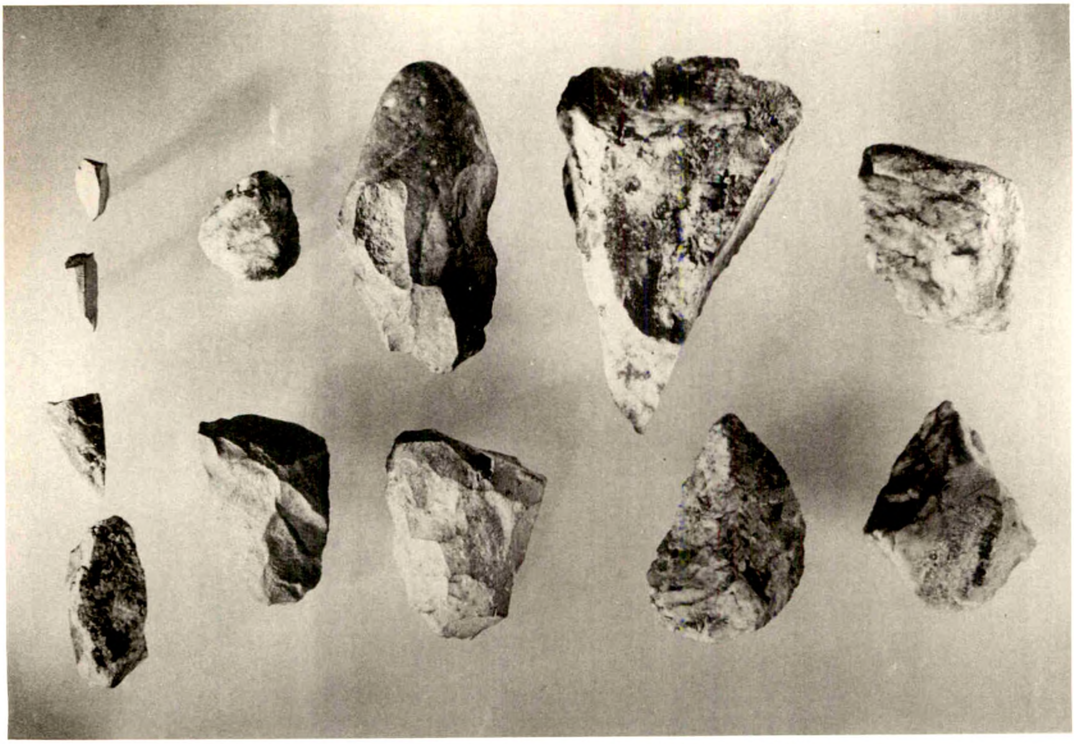

Plate II*a* Stone implements found at Sŏkchang-ri site.

Plate II*b* Quartzite spalls, Sŏkchang-ri.

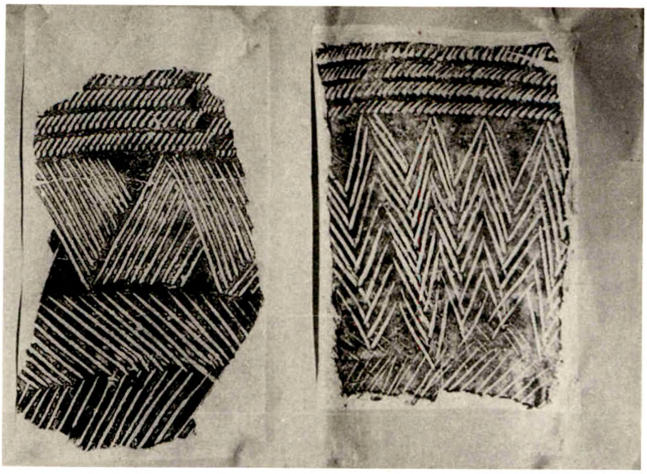

Plate III*a* Comb-pattern pottery (ink rubbing) from Amsa-ri, central-west Korea.

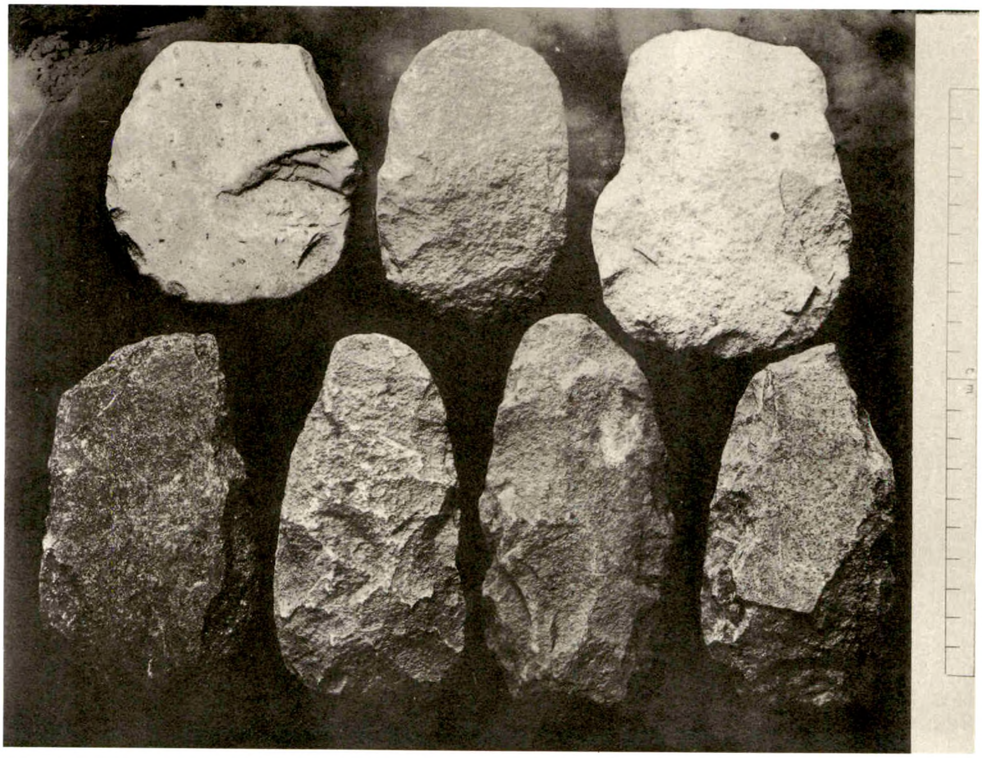

Plate III*b* Stone implements from Amsa-ri.

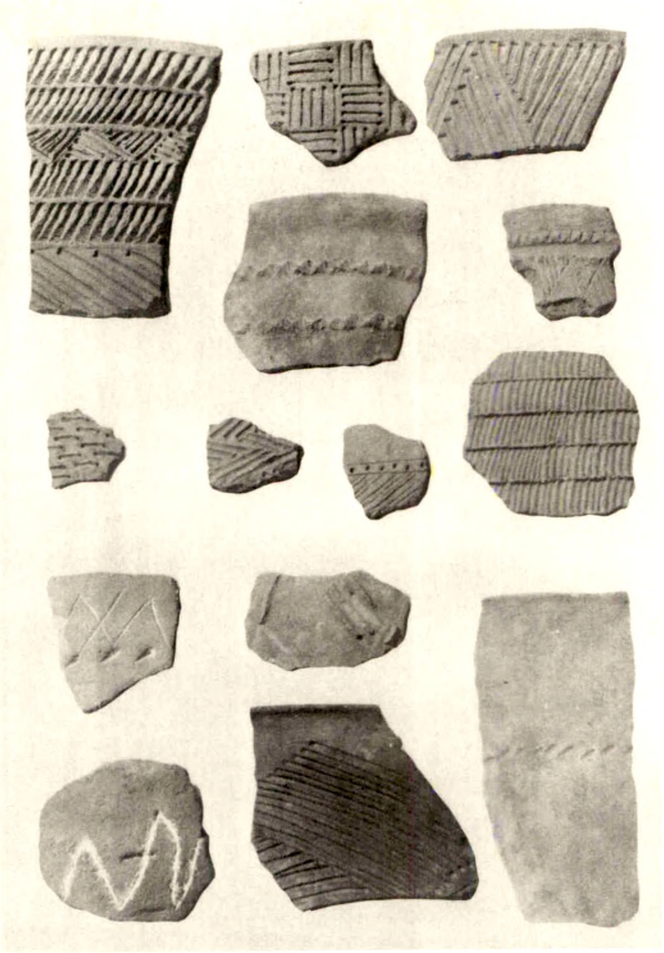

Plate IV*a* Sherds of comb pottery and other potteries from Tongsam-dong, southeast Korea.

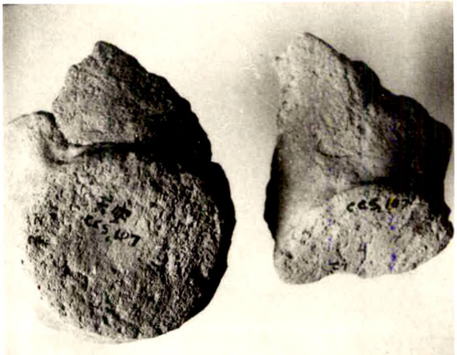

Plate IV*b* Sherds of the plain-coarse pottery from Ch'ŏnan, central-west Korea, showing the small flat bottoms. The diameter is about 2 ¾ in.

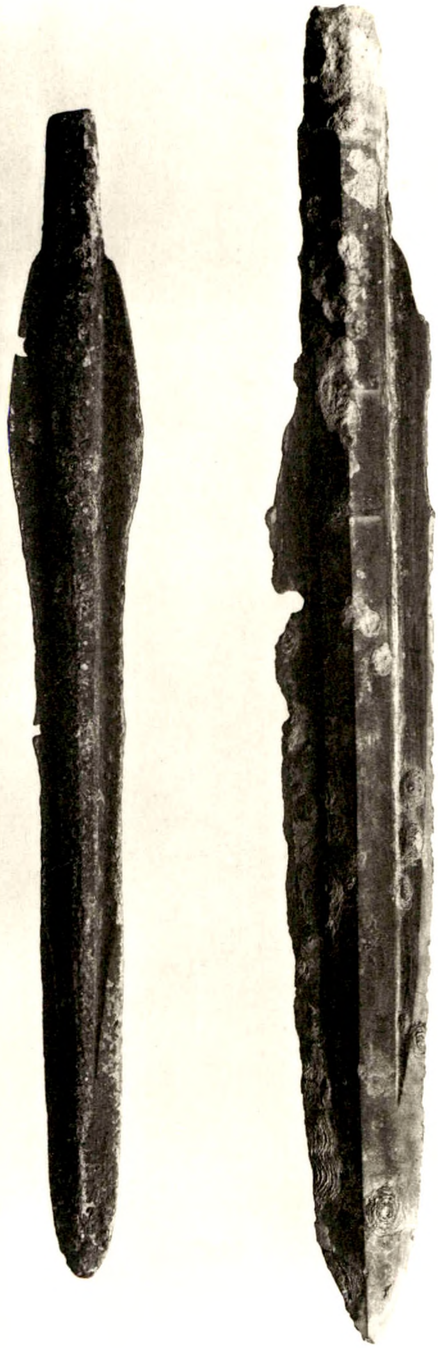

Plate V*a* Stone daggers made of slate from southwest Korea. Lengths: 12 ½ in., 11 ⅛ in.

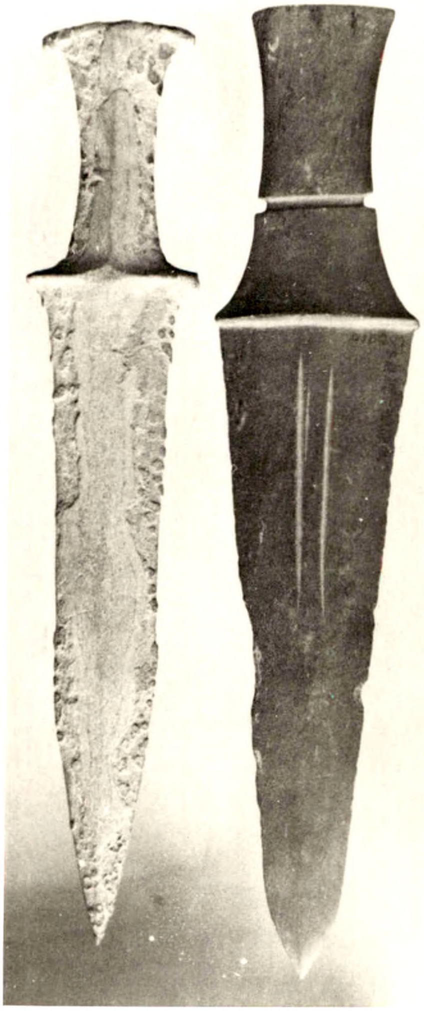

Plate V*b* Bronze daggers from southeast Korea. Lengths: 11 ¾ in., 9 ¾ in.

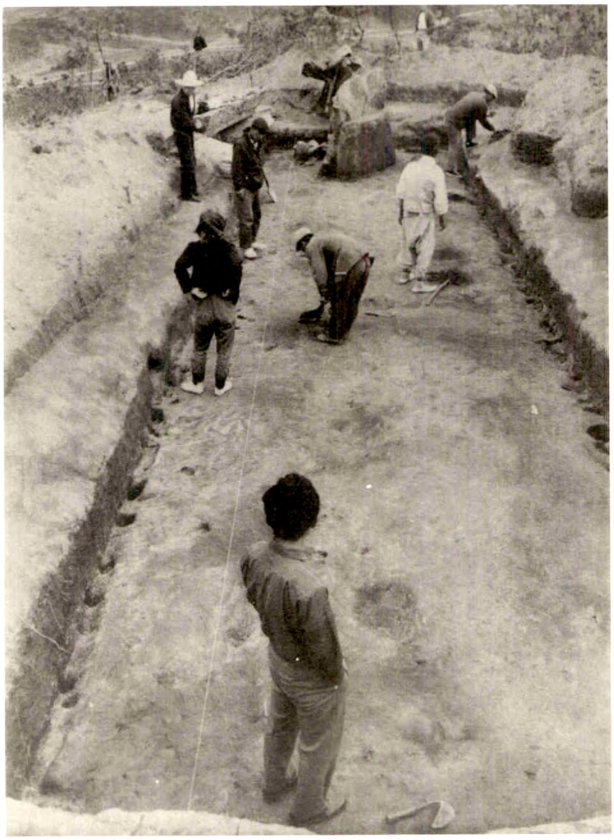

Plate VI Rectangular dwelling pit at Tŏgŭn near Seoul. Scene of excavation by the National Museum of Korea in 1965.

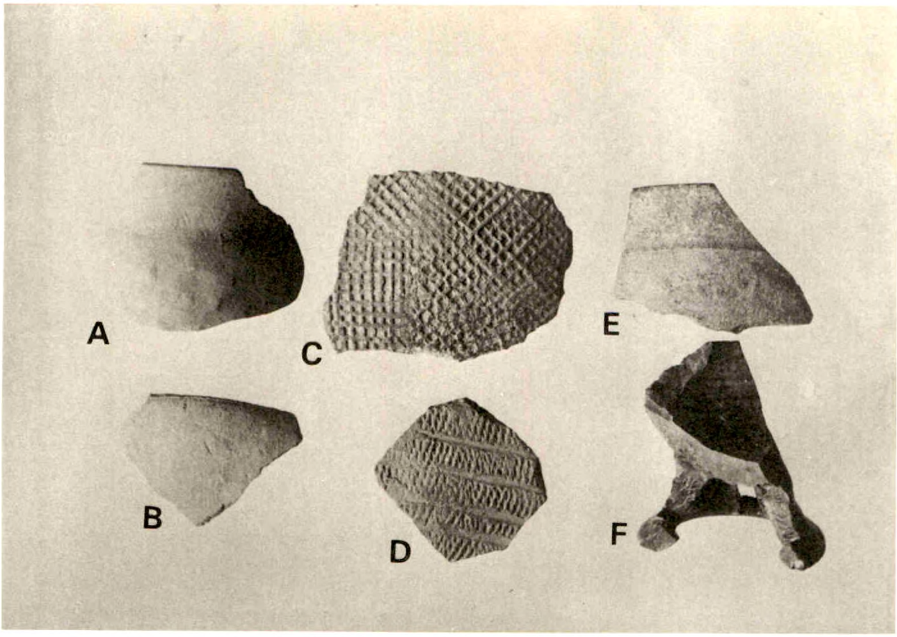

Plate VII*a* Sherds from Kimhae shell mound, southeast Korea:
a, b Kimhae brownish-plain;
c, d Kimhae decorated;
e, f Silla pottery.

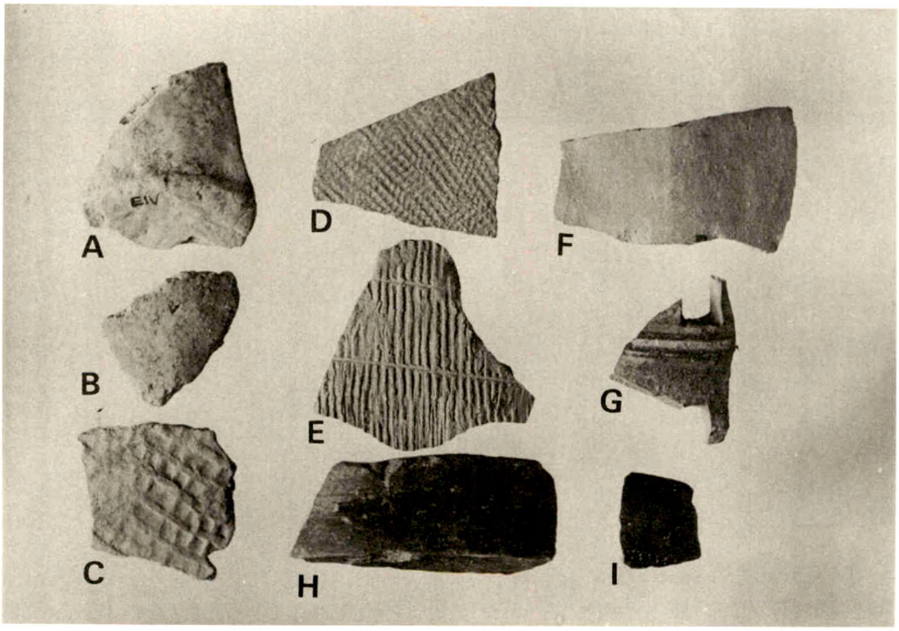

Plate VII*b* Sherds from P‘ungnap-ri near Seoul:
a, b P‘ungnap-ri brownish-plain;
c P‘ungnap-ri soft-decorated;
d, e Kimhae decorated;
f, g Silla;
h, i Black.

THE BRONZE AND EARLY IRON AGE

It has been commonly regarded that no Bronze Age had existed in Korea because bronze and iron came into Korea almost simultaneously from the Chinese continent around the fourth or fifth century B.C. In Japan, iron arrived first from either China or Korea around the fourth century B.C.

Japanese archaeologists used a special term "Kinseki Heiyōki" ("Metal-lithic period") for the peculiar situation of post-Neolithic Korea and Japan; but the term is also the formal Japanese term for the Chalcolithic Age and is not accurate for the Korean culture of concern in this report.

In the late 1950s, north Korean archaeologists started to argue that a Bronze Age did exist in Korea (To 1959). They argued that bronze age people were the dolmen builders; that their pottery was plain-coarse (Plate IV*b*); that their implements were of stone, such as the polished daggers (Plate V*a*); that they had axes, adzes, arrowheads, semilunar knives with one or two perforations, and bronze tools: socketed axes, adzes, arrowheads, chisels, and daggers (Plate V*b*). The stone daggers are stone versions of bronze originals. The culture is compared to Siberian Tagar culture, and a seventh century B.C. date is drawn as the upper limit of the Korean Bronze Age.

The argument seems to be theoretically reasonable, and indeed there must have been, in north Korea at least, a time when only bronze was known prior to the introduction of iron working. The problem, however, is that the bronze culture content is the same as that which is defined by north Korean archaeologists as the Iron Age, and a clean line cannot be drawn between the two periods on typological or distributional grounds until the fully developed stage of the Kimhae period or culture is reached. The Kimhae period (full Iron Age) represents the two or three centuries immediately after the beginning of the Christian era. The typical bronze age dagger persistently survived deep into the Iron Age—side by side with the iron sword, the socketed axe, the halberd, and some farming tools.

To back up the bronze age claim, detailed study on the evolution of the stone axe, the semilunar knife, and the plain pottery has to be done. Otherwise, at the present status of our knowledge, we are unable to assign an assemblage to any definite stage, except that the culture belongs to a "metal-lithic" age.

The Kangnŭng Site

A pit-dwelling site was reported from Kangnŭng on the east coast in 1964 (Lee 1964). Artifacts recovered from the pit are 3 saddle querns, 4 polished stone daggers, 3 polished stone axes, 3 polished stone arrowheads, 10 semilunar stone knives, 3 flat-bottomed plain pottery vessels, 1 bronze arrowhead, and 1 iron awl 9.2 cm [3 10/16 in.] long. The metal objects were not imported goods. Were it not for the iron piece, the whole find would be readily recognized as a pure bronze age assemblage. We do not know if the Kangnŭng find is merely a local phase of a full Iron Age when, in advanced areas, many of the stone tools has already been replaced by iron tools or whether it represents the general picture of Korea at the time of the Late Bronze Age or Early Iron Age. Whatever the case, all of the semilunar stone knives and stone daggers are not to be simply labeled as pure bronze age artifacts.

Dolmens

Let us turn to the problem of dolmens. In the P'yŏngyang area of northwest Korea, dolmens certainly were replaced or wiped out by Chinese mound tombs shortly after the establishment of the Lolang colony in 108 B.C. But we do not know what happened in surrounding regions where native Koreans were not disturbed by the Chinese. The picture in south Korea is more complicated. A new variety of dolmen evolved from the classic north Korean type that seems to have been constructed as late as the third century A.D. in remote areas of south Korea (Kim 1960).

A five-year research project on Korean dolmens by the National Museum of Korea had been concluded by the end of 1965, and a general report is to be published in 1966. [Ch. Kim, and M. B. Youn, *Hanguk Chisŏkmyo Yŏngu* (Studies of dolmens in Korea). Seoul, 1967.] The report is expected to throw new light on problems related to Korean dolmens.

At one excavation by the Museum team at Tŏgŭn village north of Seoul, in 1965, a large rectangular pit house 4.7 m × 15.7 m [15 ft. 6 in. × 51 ft. 6 ½ in.] site was discovered below a northern-type dolmen (Plate VI). The dolmen was constructed above the fill on the apparently burned pit house. From the floor of this unusually large pit, probably for communal use, polished stone daggers, arrowheads, and sherds of plain-coarse pottery were recovered. Similar hilltop house sites were also excavated in the same year by the National Museum at nearby Tayul Village.

THE FULL IRON AGE

The Kimhae Period

Kimhae is a provincial town located on the alluvial plain at the mouth of the Naktong River near Pusan in southeast Korea. A shell mound located at the southern outskirt of the town was excavated in 1920, and it became the type site for the Kimhae period, or the full Iron Age (Hamada 1920). The Kimhae period (ca. first–third centuries A.D.) precedes the historic Three Kingdoms period (ca. fourth–seventh century A.D.).

Kimhae Shell Mound

At Kimhae shell mound, three types of pottery are observed (Plate VII*a*).

1. *Kimhae brownish-plain pottery* apparently evolved from the traditional plain-coarse pottery of the "Metal-lithic" period; but the clay is much refined and is baked harder than its prototype. The difference in texture is at once clear. The vessel shape also shows a drastic change: the bottom is rounded, rather than flat, and horn-like projecting handles are used extensively. The surface is left plain, but dense, tiny parallel lines, probably caused by polishing with a piece of plank, occur frequently. The style is similar to that of the Japanese Haji pottery of the early Kofun period. The potter's wheel was used for the first time in Korea at this stage. The evolution both in throwing and firing achieved by Kimhae potters apparently is owing to the Chinese influence through the Lolang colony in north Korea.
2. *Kimhae decorated pottery* is the classic Kimhae pottery to which the term "Kimhae Pottery" in the narrow sense is applied.

   The clay is finer than the brownish-plain, and it is baked very hard. The color is usually gray, but light brown also occurs in considerable numbers. The surface is decorated with the cord or lattice pattern, which is produced by the beater method. In case of the cord pattern, several equidistant horizontal lines are added after the initial beating or impressing, and the result is something like the Korean straw mat used today. In a later stage, the fine cords or strings that were wound around the wooden beater were taken off, and lines were engraved directly on the beater to produce a pseudo cord pattern.

3. *Silla pottery* is the very hard, gray pottery of the Silla period (ca. fourth–seventh century A.D.). Technically speaking, Silla pottery is Kimhae pottery without the surface decoration. At a late stage of the Kimhae period potters eliminated surface decoration and put a conical ring foot on the round-bottomed pot. The fully developed Silla pottery with incised geometrical designs does not appear, however, in the Kimhae shell mound.

Kimhae people used needles, awls, arrowheads, and other pointed tools—all made of animal bones. But their favorite tool was an iron knife, set in a handle made of deer-horn tip. The people cultivated rice in the delta area that surrounded their low hilltop living site. They were also engaged in iron mining and smelting, and their iron ores were traded to Japan and the Lolang Chinese in north Korea. Primitive agriculture did exist in neolithic Korea, but the Kimhae people were probably the first to cultivate rice (Kim 1964). Their effective economy based on rice cultivation and iron mining led to the formation and emergence of kingdoms about the third or early fourth century A.D.

To find out the evolution and relationships of several pottery types during the Kimhae period and towards the early Three Kingdoms period, I excavated P'ungnap-ri (1964) and Yangsan shell mound (1965).

P'ungnap-ri Site

The settlement site of the early Paekche period (ca. third–seventh century A.D.) at P'ungnap-ri was located on the northern bank of the Han River, just across from what is now the Walker Hill Resort in the eastern outskirt of Seoul. There, right on the sand terrace, exists an elongated, rectangular settlement site surrounded by a vegetated sand bank with an overall length of about 4.0 km (2.5 mi.). It is the rampart of an ancient field fort that is said to have been constructed by the kingdom of Paekche before the capital was moved to Kongju in A.D. 475. The exact date of the construction is not known, although according to history, the fort existed in the third century A.D. Today, numerous sherds of the Kimhae decorated pottery are scattered on the surface, having been washed out by repeated floods.

Ten pits were dug into the northern part of the site. The original dwelling surface lies some 1–3 m below the present surface, and a thick (1–2 m) deposit layer caused by floods covers the original floor.

P'ungnap-ri potteries may be classified as five categories (Plate VII*b*).

1. P'ungnap-ri brownish-plain
2. P'ungnap-ri soft-decorated
3. Kimhae decorated
4. Silla
5. Black

The brownish-plain pottery is an advanced type of the traditional plain-coarse pottery, but it still retains the small flat bottom that is unique to plain pottery. The clay and texture are almost identical to the plain-coarse pottery, but it is baked considerably harder than the plain, and no surface corrosion is to be observed. The improved firing method that originated in the Kimhae decorated pottery had certainly affected this plain P'ungnap-ri. The P'ungnap-ri brownish-plain pottery persists from the bottom of the deposit layer to the surface, but it comprises only a fraction of the total sherds from the site.

P'ungnap-ri soft-decorated pottery is basically within the Kimhae decorated pottery category, but it preserves certain earlier features: the clay is soft-baked, tempered with tiny grit, and the lattice pattern is much coarser or bigger in size than the fully developed Kimhae pottery. The coarse lattice pattern is almost identical to that of similar ware of southern China.

P'ungnap-ri plain pottery seems to be the original or prototype from which the Kimhae decorated pottery evolved. It is interesting that one sherd of the P'ungnap-ri soft-decorated pottery type had been collected at a plain-coarse pottery site at Wŏlsong-ri in southwestern Korea (Kim 1963).

Kimhae decorated pottery from P'ungnap-ri is exactly the same as that of the Kimhae shell mound, and it was the predominant type of the five. In the Paekche area, the Kimhae decorated pottery survived long after its disappearance in the Kimhae and the Silla areas of southeastern Korea.

Silla pottery, a very hard gray pottery from P'ungnap-ri, is predominantly a plain, undecorated type and differs from the classic Silla pottery of the Kyŏngju area—the capital of the Old Silla Dynasty (ca. fourth–seventh century A.D.), which is characterized by incised wavy lines and other geometric designs.

Although only several sherds were collected of the black pottery, they are of particular interest. Fine clay was used for this rare pottery type, and a general burnishing was applied to the surface. In one case the burnishing, probably with bone or pebble, was so thoroughly done that the sherd almost shines like a piece of broken obsidian. Somewhat similar pottery exists in Koguryo ware, in north Korea, but the lustrous black ware, similar in texture to painted Greek vases, is unique to this site.

The historic Koguryo-Paekche black pottery doubtlessly can be linked with the black pottery that is found associated with the plain-coarse pottery in certain sites on the western coast of Korea. The latter in turn is linked to peripheral black pottery of Lunghsan China that spread out from its center in the Hwang-ho Valley toward southern Manchuria.

The deposit layer in P'ungnap-ri is not an original layer deposited by the inhabitants in due course of time, but a disturbed deposit caused by rain and flood. The five types of pottery are all associated with the living floor, and stratigraphical analysis of the deposit layer was basically futile. We may be able to conclude from the excavation that in P'ungnap-ri, the P'ungnap-ri soft-decorated pottery was introduced, from somewhere, during the last plain-coarse-pottery phase and changed the latter to a new advanced P'ungnap-ri brownish-plain pottery, and the foreign pottery itself evolved into Kimhae-decorated. There was also a black pottery which played a minor role among the five P'ungnap-ri potteries. Emergence of these pottery types had taken place at least prior to the third century A.D.

The Yangsan Shell Mound

The Yangsan shell mound is located on a hilltop on the eastern bank of the Naktong River. The site is only 47.5 km (30 mi.) northeast of the Kimhae shell mound. Analyses of the result of the excavation are underway, but at least three layers were observed. Potteries and other artifacts from this shell mound are identical to those from the Kimhae shell mound, and one cannot distinguish one from the other. The P'ungnap-ri soft-decorated pottery does not exist in Yangsan, as at the Kimhae shell mound, and the dominant pottery types associated with the basal floor were the Kimhae brownish-plain and the Kimhae decorated. The more primitive P'ungnap-ri brownish-plain does not exist in the latter two sites. The significant fact is that the emergence and evolution of the Kimhae-decorated pottery took place somewhere in the central-west coastal region, and not in the delta area of the Naktong River in southeast Korea.

Based upon the discussion above, the types of late prehistoric and early historic potteries in Korea may be summarized by the chart in Fig. 5.

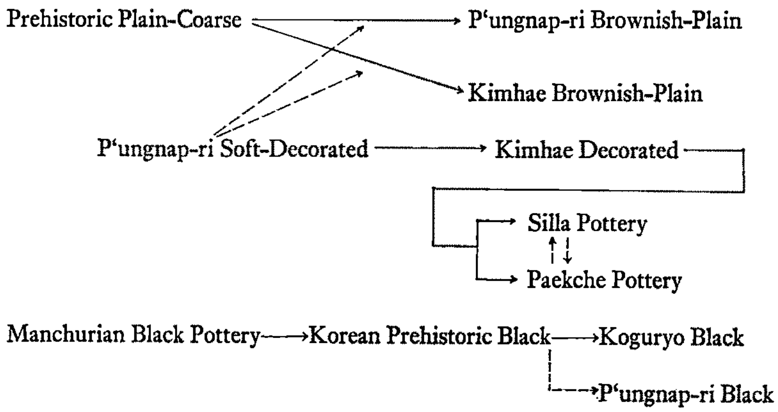

Fig. 5 Late prehistoric and early historic Korean pottery types.

GLOSSARY OF ANGLICIZED KOREAN WORDS USED IN TEXT

McCune-Reischauer Romanization	*Korean Character*
Amnok (Yalu) River	압록강 (鴨綠江)
Amsa-ri	암사리 (岩寺里)
Chumunjin	주문진 (注文津)
Hamgyŏng	함경 (咸鏡)
Han River	한강 (漢江)
Kangnŭng	강능 (江陵)
Kimhae	김해 (金海)
Kongju	공주 (公州)
Kul-p'o	굴포 (屈浦)
Kum River	금강 (錦江)
Kung-san	궁산 (弓山)
Kyŏngju	경주 (慶州)
Kyŏngju (silla)	경주 (慶州)
Naktong River	낙동강 (洛東江)
P'ungnap-ri	풍납리 (風納里)
Pusan	부산 (釜山)

GLOSSARY OF ANGLICIZED KOREAN WORDS USED IN TEXT—CONTINUED

McCune-Reischauer Romanization	*Korean Character*
P'yŏngyang	평양 (平壤)
Seoul	서울
Sŏkchang-ri	석장리 (石壯里)
Sŏp'ohang	서포항 (西浦項)
Taedong River	대동강 (大同江)
Tŏgŭn	덕은 (德隱)
Tongkwan-chin	동관진 (潼關鎭)
Tongsam-dong	동삼동 (東三洞)
Tuman River	두만강 (豆滿江)
Ulsan	울산 (蔚山)
Wŏlsong-ri	월송리 (月松里)
Yangsan	양산 (梁山)
Yŏngjin-ri	영진리 (領津里)

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This is an abridged translation in Japanese of the original (1957) monograph in Korean. The translation was done by Chong-il Shin.
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Korea

NEWS OF ARCHAEOLOGICAL MUSEUMS AND INSTITUTIONS

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HYO-JAI IM**

ALTHOUGH the movement has received relatively little publicity in the West, there has been a considerable expansion of archaeological research in Korea in the past five years. Several local teams are excavating concurrently, and new museum collections are growing throughout the country.

Museums in Seoul

The National Museum. The largest archaeological collections are in the National Museum in Seoul and its branches in Kyŏngju and Puyo. The collections in the Kyŏngju branch (which may be rebuilt in the near future) are almost entirely of Silla period remains, while the Puyo collection specializes in remains from the Kingdom of Paekche. The National Museum conducts its own excavations; the most recent was at a Silla site at Tong Nae in the outskirts of Pusan.

The Department of Archaeology, Seoul National University, has a long-standing collection of folk art and archaeology.

Ehwa Womens' University has a large collection, primarily of art historical interest, from the Lo-Lang period to the Yi Dynasty; there are many fine mirrors and outstanding porcelain and stoneware in this collection. The students and faculty of Ehwa University, in cooperation with Kyongbook University, excavated Silla mounds in the Kyŏngju region during the latter part of July 1967. The fieldwork is under the auspices of the Cultural Properties Commission and is part of a five-year program of salvage archaeology in the Kyŏngju area to recover remains threatened by the expansion of Kyŏngju City.

Korea University has the largest university museum in the country. The archaeological collections feature material from the Han River Valley; however, the artifacts are a small portion of the total exhibits that are strongly representative of the material culture and painting of the Yi Dynasty. Although the anthropological aspects of museclogy have received little attention in Korea, where archaeology is very strongly associated with art history, this collection is more ethnological than most others in the country. Plans are underway for the construction of a state anthropological museum as part of a larger science facility.

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Tungguk University has built a strong collection of Buddhist art, primarily Silla and Koryo, which includes several important bells. This collection, as with many others, has been built in the past five years.

Yonsei University has a collection of very early artifacts recently excavated by members of the university under the direction of Sohn Pow-key.

THE TAEGU AREA

Kyongbook University in Taegu has built as impressive collection of art history and archaeology. Since Kyŏngju—the center of Silla remains—is close to Taegu, the museum contains abundant collections from these sites. Neolithic sites in the area have also been investigated.

THE PUSAN AREA

At least two institutions in Pusan are actively engaged in archaeological research:

Tong Ah University is in the process of arranging a large and comprehensive collection from all aspects of Korean archaeology. Artifacts from excavations of shell mounds in the Pusan area are particularly numerous.

Pusan National University possesses a separate museum building which houses paintings, sculpture, and Silla pottery.

CHEJU ISLAND

The Cheju Museum of Folklore, a private museum in Cheju City, contains a small collection of archaeological material that is carefully catalogued, whereas many of the other museums provide only the most general data concerning provenience. These items proved particularly useful in the short survey conducted by the University of Hawaii and Seoul National Museum in July 1967. The museum also has a collection of roughly fired stoneware that is thought to have been produced on Cheju Island, although the precise location of the kiln site has not been found.

This incomplete note is intended to give the reader some indication of the wealth of material and the rapid increase of facilities for the study of archaeology in Korea.

China: 1964–1965

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ARCHAEOLOGICAL activities in China were carried out during 1964–1965 with the same pace as in previous years. For the sake of economy, this paper closely follows Kwang-chih Chang's previous report (*AP* VIII, 1: 69–75) in format and uses his abbreviations for the three institutions that do most of the archaeological research in China. The institutions are:

IA	Institute of Archaeology, Academia Sinica, Peking. The Institute has a number of branches and task-force teams in various parts of the country. The teams are referred to by their official titles, followed by the abbreviation IA. The Institute of Archaeology edits *K'ao-ku (KK)* [Archaeology] and *K'ao-ku-hsüeh-pao* (*KKHP*) [Archaeological journal]. *KK* is a monthly publication. The year of publication serves as the volume designation and the numbers 1 through 12 are renewed each year. *KKHP* is published either as a quarterly or as a seminannual. Both periodicals are published by the Science Press, Peking.
IVPP	Institute of Vertebrate Palaeontology and Palaeoanthropology, Academia Sinica, Peking, edits *Vertebrata Palasiatica (VP)*, published quarterly by the Science Press, Peking.
CPAM	Commission for the Preservation of Ancient monuments. With slightly varying names, the commissions are established in most provinces, cities, and counties and are referred to by the abbreviation CPAM followed by the location.

The journal, *Wen-wu (WW)* (Cultural objects), published by the Peking Press, Peking, also carries a large number of archaeological articles.

NEW SITES REPORTED IN 1964–1965

More detailed reports are now available on the *Pithecanthropus* mandible that was discovered at Ch'en-chia-wo in Lan-t'ien, Shensi, in November 1963 (*WW* 1964, 1: 53–54; *KK* 1964, 5: 261–262; *VP* 1964, 2: 1–17; and *VP* 1964, 3: 301–310). In 1964, a fossil skull was brought to light at Kung-wang-ling, also in Lan-t'ien, from geological deposits considered to be even older than both Peking man and the Lant'ien mandible. Mammalian fossils were found associated with both the skull and the mandible. Flakes and small chopper-chopping tools that possibly were made and used by Lant'ien man were discovered within the same stratum and near the area where the mandible was found. On the surface, near the locality where the skull was discovered, a large roughly-made, round, disk-like scraper was collected (*WW* 1964, 12: 65; *WW* 1965, 1: 19–23, 24–25, 58; *VP* 1965, 1: 123–124).

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More than 100 palaeolithic implements were found in the early late pleistocene sandy clay deposits with sand and gravel interbeddings along Lao-ch'ih-ho-kou in Lan-t'ien; and a large point was collected from the middle pleistocene reddish clay. These findings have enlarged the known areas of distribution of palaeolithic cultures in China (*VP* 1964, 2: 152–161).

From late pleistocene deposits, palaeolithic remains have been found from Huo-hsien, Shansi (*VP* 1965, 4: 399–402), the Sanmen Gorge area of Western Honan (*VP* 1964, 2: 162–181), and a cave site at Hsiao-nan-hai near An-yang, Honan (*KKHP* 1965, 1: 1–27). More than 2,000 stone tools were collected during the second season of excavations at Shui-tung-kou in Ninghsia (*VP* 1964, 1: 73–85). Some chipped stone tools were collected from the Alashan Desert in the north (*VP* 1965, 4: 414–419). For the first time, palaeolithic implements were excavated in association with mammalian fossils of the so-called Stegodon-Ailuropoda fauna of South China, at Kuan-yin-tung in Ch'ien-hsi-hsien in Kweichou (*VP* 1965, 3: 270–279). Besides a large number of pleistocene mammalian fossils, a tooth of *Homo sapiens* and evidences of cultural activities were recognized in caves of Chekiang (*VP* 1964, 1: 92–94).

Discoveries and excavations of neolithic sites took place throughout the country during the period under review, and reports covering approximately three hundred sites have been published. The most important of these neolithic sites are:

Honan: Yangshao, Lungshanoid, and Lungshan sites (*KK* 1964, 1: 13–18, 30–35; *KK* 1964, 11: 543–549, 590; *KK* 1965, 5: 215–224; *KK* 1965, 7: 326–339; *KK* 1965, 9: 433–439).

Hopei: Yangshao and Lungshan sites (*KK* 1965, 4: 205–206; *KK* 1964, 6:316–317).

Shantung: Lungshan sites (*KKHP* 1964, 2: 57–104; *KK* 1964, 11: 550–552; *KK* 1965, 1: 6–12, 39; *KK* 1965, 12: 599–613).

Shensi: Yangshao sites (*KK* 1965, 9: 440–442, 450).

Kansu: Ch'ichia, Machiayao and Hsintien sites (*KK* 1964, 6: 267–269; *KK* 1965, 7: 321–325).

Hupei: (*KK* 1964, 5: 215–219; *KK* 1965, 1: 41–42).

Hunan: (*KK* 1965, 10: 536–537).

Kiangsu: Ch'inglienkang and Lungshanoid sites (*KKHP* 1964, 2: 9–56; *KKHP* 1965, 2: 9–46; *KK* 1964, 1: 19–25, 26–29, 18; *KK* 1964, 5: 220–226).

Kiangsi: Lower Yingp'anli sites (*KK* 1964, 4: 169–175).

Fukien: T'anshihshan site (*KK* 1964, 12: 601–602, 618; *KK* 1965, 2: 49–61, 79).

Kwangtung: Geometric sites (*KK* 1964, 7: 323–332, 345; *KK* 1965, 4: 159–165; *KK* 1965, 9: 443–446).

Szechuan: (*KK* 1965, 12: 614–618).

Nihghsia: Ch'ichia (*KK* 1964, 5: 232–233, 244) and microlithic sites (*KK* 1964, 5: 227–231, 241).

Sinkiang: (*KK* 1964, 7: 333–341).

Inner Mongolia: Yangshao and Lungshan (*KK* 1965, 10: 487–497) and Hsiachiatien sites (*KK* 1964, 1: 1–5).

Kirin: (*KK* 1964, 1: 6–12).

The most abundant and significant data among these new findings are in the North and the Southeast, especially Honan, Shantung, and Kiangsu. In Honan, new evidence has thrown more light on the problem of transition from Yangshao to Lungshan (*KK* 1964, 11: 544–549, 590; *KK* 1965, 9: 433–439). In Shantung, the excavation at Hsi-hsia-hou in Ch'ü-fu indicates that the so-called Ta-wen-k'ou culture, a culture variously classified as a late phase of the typical Lungshan, a much later independent culture, or an early Lungshan, is in fact a culture antedating the typical Lungshan culture of this area (*KKHP* 1964, 2: 57–106; *KK* 1965, 12: 599–613).

At the Ta-tun-tzu site in P'i-hsien, Kiangsu (*KKHP* 1964, 2: 9–56; *KKHP* 1965, 2: 9–47), stratigraphical evidence has established a stage of culture that is earlier than the Hua-t'ing phase, but later than the typical Ch'ing-lien-kang phase; it is known as the Liu-lin phase. Field workers have paid considerable attention to the similarity between the Liu-lin phase in Kiangsu and the Ta-wen-k'ou phase in Shantung. The occurrence of painted pottery in this culture as well as stratigraphical evidences show that it is earlier than the typical Lungshan culture in Shantung and the Late Lungshanoid culture in Kiangsu. It is evident that there are certain relationships between this type of culture and the Yangshao culture of North China.

The house uncovered from a neolithic site at Ch'ü-kiang in Kwangtung is the second finding of a neolithic house in South China after the first discovery from Hsiu-shui in Kiangsi (*KK* 1964, 7: 323–332, 345).

In addition to the Hsia-chia-tien culture, a "new" neolithic culture containing microliths has been identified in Inner Mongolia (*KK* 1964, 1: 1–5); sites in this area have yielded elements of Yangshao and Lungshan culture types in close association with native types. The Lungshan traits seem to have a wider distribution, reaching as far as the foothills of Ta-ch'ing Mountain (*KK* 1965, 10: 487–497).

Some 150 sites found throughout the country during the period under review are attributed to Shang and Western Chou periods. The publication of the excavation of the "royal" tomb number 1002 at Hsi-pei-kang (HPKM 1002), near Hou-chia-chuang in Anyang (by Liang Ssu-yung and Kao Ch'ü-hsün, Academia Sinica, Taipei, 1965) was the event of this period. Stratigraphical evidence from the Shang sites and burials at Ta-ssu-k'ung-ts'un in An-yang provide an additional basis for dating pottery (*KK* 1964, 8: 380–384). Beside An-yang, Shang sites and burials were reported from Honan (*KK* 1964, 9: 435–440; *KK* 1965, 10: 500–506) and Hupei (*KK* 1964, 8: 420–421). Shang-style bronzes were unearthed from Honan, Hopei, Shantung, and Anhwei.

In the archaeology of the Western Chou civilization, the period under survey witnessed the publication of *Chün hsien Hsin-ts'un* (by Kuo Pao-chün, Archaeological Monograph Series B, No. 13, IA, 1964) that reports graves of the state of Wei in Chün-hsien, Honan, excavated before World War II. The material itself is now located at Taipei, but Kuo was able to produce this monograph on the basis of notes and photographs.

Archaeological Monograph No. 15, IA (1965)—*Ch'ang-an Chang-chia-p'o Hsi-Chou T'ung-ch'i-ch'ün* [Bronzes of Western Chou from Chang-chia-p'o in Ch'ang-an]—not only describes the excavation of the storage pits from which Western Chou bronzes were uncovered, but also records these artifacts with photographs, ink rubbings, and drawings. Burials and houses of Western Chou were also brought to light at Feng-hsi in Ch'ang-an (*KK* 1964, 9: 441–447, 474; *KK* 1965, 9: 447–450). Other bronzes of the Western Chou style were discovered in Shensi (*WW* 1964, 7: 20–27), Honan (*KK* 1965, 2: 94–96), Shantung (*KK* 1965, 11: 541–547; *KK* 1965, 1: 6–12, 39), Hupei (*KK* 1965, 7: 369–370), Hunan (*KK* 1965, 9: 482–483), and Inner Mongolia (*KK* 1965, 12: 619–621).

Perhaps the most important result in the archaeology of Eastern Chou is the excavation of the city and tombs of Yen-hsia-tu, near I-hsien, in Hopei (*KKHP* 1965, 1: 83–106; *KKHP* 1965, 2: 79–102; *KK* 1965, 11: 548–561, 562–570). More is now known about the subdivision of the city, the method of hangt'u building, and the system of burials. Sites and graves of the Yen civilization were also uncovered in T'ien-chin (*KK* 1965, 1: 13–16; *KK* 1965, 2: 62–69, 96–98).

Important discoveries and excavations of ancient city sites, tombs, and artifacts of Eastern Chou—Ch'in, Ch'u, Wu, and Shu states—were made in Shensi (*KK* 1965, 7: 339–346; *WW* 1964, 9: 42–45: *WW* 1965, 7: 12–17, 19, 53–55), Shantung (*KK* 1965, 12: 622–635), Shansi (*KK* 1964, 3: 111–137), Hupei (*KK* 1965, 8: 377–382), Hunan (*KK* 1964, 2: 104–105), Kiangsu (*KK* 1965, 3: 105–115), Anhwei (*KK* 1964, 10: 498–503), Kwangtung (*KK* 1964, 3: 143–151, 160; 138–142), Inner Mongolia (*KK* 1964, 1: 36–43, 53, 58; *KK* 1965, 6: 273–282; *WW* 1965, 2: 44–46), Kirin (*KKHP* 1964, 1: 29–49), and Liaoning (*KK* 1964, 6: 277–285, 286–293).

At the famous site at Shih-chai-shan, in Yunnan, in addition to bronze and iron objects, some lacquered objects were recovered. Studies have been undertaken to interpret the "pictographs" on the bronzes (*WW* 1964, 12: 41–49, 50–51, 64; *WW* 1964, 5: 33–40). Tombs similar to those of Shih-chai-shan were excavated at T'ai-chi-shan near An-ning, also in Yunnan (*KK* 1965, 9: 451–458).

New Archaeological Studies in 1964–1965

General

In a paper for the symposium "Movement of the Malayo-Polynesians: 1500 B.C. to A.D. 500" (*CA* v, 5: 359–406), Chang has attempted to apply the concepts of "horizon" and "tradition" to South China. On the basis of the archaeological data which have been accumulating in recent years, he formulates five culture horizons and four traditions for the Prehistoric and Early Historic periods of South China, from the beginning of either agriculture or ceramics, or both, through the Han Dynasty.

A review article by Hsia Nai, "Archaeological Discoveries in China in the Last Five Years" (in Chinese) has a useful bibliography (*KK* 1964, 10:485–497, 503).

Palaeolithic Period

The Lant'ien mandible is better preserved than any of the *Sinanthropus* mandibles and is said to be closely related to the latter, but there appear to be some significant differences between them as well. This is said to be the first ape-man mandible that has the antemortem in the M3 (*VP* 1964, 2: 1–17). For the physical characteristics of the skull from Lan-t'ien, we have to await further publications.

In the monograph *Excavations of Liucheng Gigantopithecus Cave and Exploration of Other Caves in Kwangsi* (IVPP, Series A, No. 7. Peking: Science Press, 1965), the authors report the result of their research in mammalian fossils collected from Kwangsi and present arguments for the subdivision of the quaternary *Stegodon-Ailuropoda* fauna of South China into three segments. Descriptions of some fossil-bearing caves in Kwangsi are given. A few important caves—such as the Liucheng Gigantopithecus Cave of the Early Pleistocene period, the Liukiang-Man Cave, and the Chilingshan-Man Cave—are described in separate sections of the monograph.

The problems of quaternary geology and glaciation, which are closely related to the archaeology of palaeolithic cultures and the study of fossil men in this part of the world, have received the close attention of modern geologists in China for a long time, and during 1964–1965, three symposium volumes appeared: *Ti-ssu-chi Ti-chih wen-t'i* [Problems of the quaternary epoch] (Peking: Science Press, 1964); *Chung-kuo Ti-ssu-chi ping-ch'uan i-chi yen-chiu wen-chi* [Symposium on quaternary glacial phenomena] (Peking: Science Press, 1964) and *Chung-kuo ti huang-t'u tui-chi* [Loess deposits in China] (Peking: Science Press, 1965). These volumes not only report the recent field work but also present discussions of general theoretical significance.

In addition, several articles on geological studies of the cenozoic deposits of Lan-t'ien (*VP* 1964, 2: 134–151), the younger cenozoic deposits of southwestern Shansi (*VP* 1965, 3: 256–269), and the problem of the Sjara-osso-gol series (*VP* 1964, 2: 99–118), all have important bearing on the chronology of the palaeolithic remains uncovered from these geological strata and on problems concerning their environmental contexts.

Typologically, the manufacturing techniques of the palaeolithic implements from the pleistocene deposits at Lan-t'ien are considered primitive, somewhat similar to the lower palaeolithic culture of *Sinanthropus* from Chou-kou-t'ien. On the basis of mammalian fossils, stratigraphy, as well as typology, these are considered to be of the Middle Palaeolithic Age. The large pointed implement collected from the middle pleistocene stratum is said to be different from the assemblages at Ting-ts'un and Ho-ho in Shansi (*VP* 1964, 2).

The palaeolithic remains from Huo-hsien, Shansi, seem to be comparable with the Ting-ts'un finds, as the heavy prismatic points from Huo-hsien are similar to those of Ting-ts'un. The Tingts'un culture probably has an extensive distribution and may have reached the middle of the Fen Valley (*VP* 1965, 4). Stratigraphically and typologically, the palaeolithic remains from the six localities in the Sanmen Area are of the Palaeolithic Age, but they all exhibit pronounced regional characteristics (*VP* 1964, 2).

Study of new materials from Shui-tung-kou shows that these again are similar to the Tingts'un culture. They are probably Late rather than Middle Palaeolithic in typology (*VP* 1964, 1). A comparative study between the palaeolithic implements from Hsiao-nan-hai and those from localities 1 and 15 of Chou-kou-t'ien and Sjara-osso-gol shows that some elements of this Hsiao-nan-hai culture can possibly be traced back to the Choukout'ienian. The resemblance between the Hsiaonanhai culture and the culture at Sjara-osso-gol shows two different regional phases of the same developmental stage (*KKHP* 1965, 1).

Neolithic Period

During the period under survey, new stratigraphical data pertaining to the neolithic cultures were brought to light, but a major emphasis was placed upon the Yangshao culture with reference to its typological and chronological subdivision and the relationship between the various culture phases. The Yangshao culture is usually broken down into two or several phases. There are debates concerning the chronological relationship between the two phases (Panp'o and Miaotikou) in the two-phase hypothesis. The latest view is that the Yangshao had a center of distribution in southern Shensi and the adjacent regions in southern Shansi, western Honan, and eastern Kansu. It expanded from this nuclear area, first to the north and the south, and then to the east and the west. Within the nuclear area itself, the area east of Shan Hsien and that west of Shan Hsien again exhibit considerable differences. In the eastern area, the difference between the earlier and the later phases is more pronounced. The Panp'o and Miaotikou phases are considered to be contemporaneous and are two local varieties, rather than two developmental stages. Within the entire area of distribution of the Yangshao culture, the Panp'o and Miaotikou phases had only a limited expanse. The Yangshao culture phases other than these two remain to be characterized, and their distribution remains to be studied, but it is already clear that it would be inadequate simply to divide the Yangshao into the Panp'o and Miaotikou phases (*KKHP* 1965, 1: 51–82).

According to the interpretation of the burial system and the arrangement of houses, some archaeologists maintain that the social organization of the Yangshao is that of a later stage of the "matriarchal society" on the verge of becoming disintegrated (*KKHP* 1965, 1: 51–82; *KK* 1965, 11: 582–584).

A few other problems in neolithic archaeology are those of the "periodization" of the Yangshao remains from Mia-ti-kou and San-li-ch'iao, and the characteristics of the remains from San-li-ch'iao. Both stratigraphicall evidence and the large amount and great variety of artifacts suggest that Yangshao underwent a long development. According to the complexity of the shapes and decorative designs of pottery, it is possible now to divide the first period that has been distinguished further into two sections. But the Yangshao remains from Miao-ti-kou is thought to belong to a single phase (*KKHP* 1965, 2: 49–77; *KK* 1964, 6: 301–305).

The Yangshao remains from San-li-ch'iao are variably attributed either to the Panp'o phase, to the Miaotikou phase, or to a middle position between these two phases (*KKHP* 1965, 1; *KK* 1965, 11).

The accumulation of Yangshao remains from Hopei has enabled attempts to classify and date the culture in this province. The Yangshao remains from Hopei have been shown to contain characteristics similar to those from Honan, Shansi, and Shensi, even though regional features are present. Four types of Yangshao remains can now be recognized from Hopei. In addition, the Hungshan culture has some Yangshao traits to the south of the Great Wall, but its relationship to the Yangshao culture in North China remains unclear (*KK* 1964, 9).

In the archaeology of the Lungshan culture, an important undertaking is the re-examination of the remains from Ching-chih-chen in Shantung. The differences between the remains from Ching-chih-chen and the remains from "typical Lungshan culture" are stressed, and Ching-chih-chen evidently was not of the same culture as Liang-ch'eng-chen and Ta-ch'eng-shan. The Lungshan culture from Chien-kou ts'un in Han-tan is much closer to the typical Lungshan culture of Shantung than to those from San-li-ch'iao (*KK* 1964, 9: 462–467).

The close relationship between the neolithic cultures of Kiangsu, Chekiang, and Shantung has long been noticed in recent years by field workers. Three neolithic cultures can be recognized in Kiangsu and Chekiang: (1) the earliest, typical Ch'inglienkang; (2) the Liulin phase, which is closely related to the Paot'ou phase from Shantung; (3) the latest, typical Liangchu phase. The culture position of Liulin and the reason for its distribution to the south of T'ai Lake remain unknown (*KK* 1964, 9: 468–471).

In Kiangsi and Kwangtung, a "new" neolithic culture with many chipped-stone tools (but few ground-stone tools), coarse red or black pottery has been found from beneath the Geometric pottery layer (*KK* 1965, 10: 517–524).

Bronze-Iron Age

Topical studies of An-yang artifacts include those of bronze artifacts (C. J. Shih, *Bulletin of the Institute of History and Philology,* No. 35: 321–342, Academia Sinica, 1964) and bone implements (C. R. Lü, *BDAA*, Nos. 25–26: 33–60). An-yang bronzes are also studied both in the casting process and in decorative patterns, and a significant result is the publication of *Archaeologia Sinica* by Li Chi and Wan Chia-pao (n.s., No. 1, Taipei: 1964; also see W. Fairbank and C. P. Wan in *Symposium in Honor of Dr. Li Chi on His 70th Birthday,* Part 1: 275–280, 1965).

Significant studies in the archaeology of the Warring States period are those of bronze weapons and of the systems of measurement. The former study classifies all the known material brought to light by modern archaeological methods from the field and studies their origin and distribution (J. L. Chen in *BDAA* 1964, 23–24: 12–45). The latter concludes that the system of measurement was all but standardized during the Warring States period (*KK* 1964, 6:312–314).

In South China, a typological study of bronze drums from Kwangsi recognizes four types—dated from the Warring States period to the Ch'ing Dynasty in South China (*KK* 1964, 11: 578–588). A thorough examination of the distribution of all bronze drums discovered from the ground and recorded in books has also been made (*KK* 1965, 1: 31–39).*

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* This report was written during summer, 1966, when I worked as a research assistant of Professor Kwang-chih Chang of the Department of Anthropology, Yale University. I wish to thank Professor Chang for his assistance and encouragement in its writing.

Ceylon: 1965–1966

ANNOTATED BIBLIOGRAPHY

Received 31 May 1967

P. E. P. DERANIYAGALA*

DERANIYAGALA, P.E.P.

1965*a* Some extinct hominoids and other mammalia of Ceylon. *D.N. Wadia commemorative volume.* Mines, Minerals, and Geology Department of the Government of India publication. pp. 290–300, map, 3 plates.

Ceylon's laterite beds and fossils of her extinct proboscideans, rhinoceroses, and hippopotamus are utilized in dating the stone artifacts that occur with them. The Ratnapura stone industry and Balangoda culture are defined, and twelve physical and five cultural differences between *Homo sapiens balangodensis* and the Väddas are listed.

1965*b* Some present-day problems of cave research in Ceylon. *Studies in speleology* 1. British Museum of Natural History. pp. 143–147, map, 1 fig., 1 plate.

Numerous caves and rock-shelters containing important anthropological and zoological material that were untouched by modern man are now being converted into dwelling places, and unless immediate action is taken, they will be rendered useless for study purposes. The map lists twenty already partially explored caves and rock shelters.

The Speleological Society of Ceylon that the author inaugurated about twelve years ago is now inactive.

1966*a* *Seventh Congress International des Sciences Préhistoriques et Protohistoriques, Programme,* Praha 1966. 130 pp. See pp. 7, 40, 116. The subdivision of the prehistoric archaeology of Ceylon by P. Deraniyagala is on p. 40.

1966*b* Some aspects of the fauna of Ceylon. *Journal of Royal Asiatic Society (Ceylon Branch)* IX, pt. 2: pp. 165–219. 9 figs., 7 plates.

Describes the two Pleistocene climatic phases that played important parts in faunistic evolution in Ceylon, namely the cool *Ratnapura* phase and the semiarid *Palugahaturai* phase.

The distribution of gem pits that had yielded hippopotamus fossils in the province of Sabaragamuva indicates the existence of a lake that had once extended over a distance of 19 mi. by 7 mi. during the Lake phase of Ceylon's Middle and Upper Pleistocene. Assays of timber from two gem pits revealed that the sample from Palmadulla had been submerged 47,000 years ago while the one from a pit at Ratnapura had been submerged 7,670 years ago. The latter indicates the impending termination of the Lake phase of Ceylon. The Hominoidea of Ceylon comprises four families: the Cercopithecidae, Colobidae, Pithecanthropidae, and Hominidae. The third family possesses one representative *Homopithecus sinhaleyus.* The fourth family possesses *Homo sinhaleyus* that suggests Neanderthal affinities and *Homo sapiens balangodensis* that at times displays eleven Neanderthal characters. All three Homos are extinct, but there is reason for supposing that the Pithecanthropid was a contemporary of *Homo sinhaleyus,* who might have been the maker of the artifacts of the Ratnapura culture, whereas the culture of *Homo sapiens balangodensis* is the Meso-Neolithic Balangoda culture, for which the term Bandarawelian culture is a junior synonym and consequently invalid.

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GODAKUMBURE, C.E.

1965 The prehistory of Ceylon. *Ceylon Today* XIV, 10. Ceylon Government Information Department publication. pp. 19–25, 4 illus.

This article by the Archaeological Commissioner of Ceylon states that although during the first decade of this century various people had collected stone implements in Ceylon, demarcation of the Old Stone Age of Ceylon from the New had not been possible until Deraniyagala in 1940 discovered crudely flaked stone implements associated with fossils of extinct vertebrates in the gem sands of the Ratnapura district. Godakumbure states this is the Ratnapura phase, the younger the Belangoda one, and that the latter name is prior to the term Bandarawelian culture that was proposed by the Noones at a later date. He adds that "Deraniyagala's researches now enable the student of human history to reconstruct the hitherto unknown life of the later prehistoric humans of Ceylon with a good deal of vividity" and gives an account of the same. The pot burials recorded by Deraniyagala in 1956 and 1957 are also dealt with, and he mentions that the megalithic dolmen of Padavigampola and others at Kathiraveli "await excavation."

KENNEDY, K.A.R.

1965 Human skeletal material from Ceylon, with an analysis of the island's prehistoric and contemporary populations. *Bulletin of British Museum* (Natural History), Geology (Palaeontological Series) 11, 4: 3–213. 9 figs., 15 plates, £2.5s.

The fossilized human skeletal remains dug up at Bellan Bandi Palassa and partly described by P. Deraniyagala in seven papers are correlated with his other geological, palaeontological, and anthropological discoveries and are analyzed anthropometrically and biochemically. Although the genetic affinity between these humans had bifurcated from a common stem several millennia prior to the occupation of this site, Kennedy suggests a new popular name of Balangodese for this extinct race, but Carlton Coon's name of Balangodans in his book *The Origin of Races* (1962) has priority and is consequently the valid one. The ethnographic and prehistoric evidence strongly supports the view that there was a continuous cultural tradition with local modifications extending from Late Stone Age times up to the present.

Madagascar

Received 15 March 1967

PIERRE MICHEL VÉRIN*

Archaeology and Cultural History

SINCE my last report to *Asian Perspectives* (Vérin 1964), archaeological work in Madagascar has been carried out principally under the direction of the Centre d'Archéologie, which in January 1965 succeeded to the Département d'Art et d'Archéologie de l'Université de Malgache. During the second half of 1965, however, the number of archaeological reports about Madagascar decreased. The bibliography of this report is arranged by subjects following the headings of the text.

With the exception of an adze fragment, apparently neolithic, that P. Block and I found in the high Betsiboka region (Block and Vérin 1966), few discoveries have been made that date from the remote age of the people of Madagascar. However, some interesting analyses on Madagascan origins and protocultures appeared recently in articles by Solheim (1965) and Valette (1965); and Donque has carefully envisioned the geographic possibilities of ancient migrations towards Madagascar (Donque 1965). Molet (1966) has recalled the different methods that will help clarify the bothersome enigma of the coming of the first Madagascans. J. Poirier (1965) estimated that the east coast of the island would have been the first region to be inhabited.

Some rectifications on the state of archaeological research in Madagascar have appeared in *Madagascar Aujourd'hui* (Vérin 1965*a*) or are about to appear in *Azania* (Vérin 1966*b*). Moreover, I with Battistini presented to the *Madagascan Geological Week* a list of radiocarbon dates of the last Quarternary sphere and of Madagascan protohistory.

One of the most outstanding events of the beginning of the occupation of Madagascar is evidenced by the "vanishing" of subfossils and a part of the flora from the strata of that age; the disappearance represents a crucial problem. Battistini (1965) has distinctly suggested the state of knowledge of the period and presents a most credible hypothesis. The visit in March 1966 of P. Martin brought new enlightenment. This ecological specialist estimates, in effect, that one must take into account the eminent role of man in the explanation of the disappearance of subfossils and that this "disappearance" must be considered independently of our knowledge of contemporary changes undergone by the flora.

L'Académie Malgache has a collection of subfossils that were displayed in an interesting exhibition prepared by J. Mahe. The fossil relics of d'Itampolo, whose datings were indicated in *AP* VII (Vérin 1963), were studied by Battistini and me and reported to the Société Préhistorique Française (Battistini and Vérin 1964*a*).

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Among the ancient sites known up to this time, the "arab" remains of the Rasikajy and the Antalaotra cultures merit a comprehensive study, and it is now in process. Until recent research, only the site of Vohémar was excavated, by Gaudebout and Vernier (1941) (see also Vérin 1962). A detailed examination of the ceramics discovered at Vohémar that are preserved in the collections of the Office de la Recherche scientifique et technique outre-mer (ORSTOM) at Tsimbazaza shows that a large number of these relics belong to the seventeenth and eighteenth centuries. Vohémar therefore functioned until a late era, but one still does not know at what time it was founded.

As for the region of Mahilaka, identified by L. Millot in the early part of this century (Millot 1912) and explored by C. Poirier around 1948, there were places able to be occupied anciently enough—from the eleventh century. The collections of ORSTOM that originate from Mahilaka contain in effect some relics of Persian *sgraffiato* and of pottery, from Hadramaout (?), that date from that time.

The sections of Antsoheribory and of Nosy-Manja in the northwest of Madagascar, which were attacked by the Portuguese in 1506, rank among the most prosperous Arab establishments of the era. I was able to visit both sites at the beginning of 1966 when excavation was in process.

The remains collected at Nosy-Manja indicate that the site was inhabited between the fifteenth and the seventeenth centuries; the town was, without a doubt, annihilated by the Sakalava at the end of the seventeenth century, as Guillain indicates. Some interesting mausoleums and remnants of the town remain; they were first described by C. Poirier (1954).

At Antsoheribory, the groups of remains (tombs, houses, mosques) belong to very diverse periods. According to Guillain, the island was abandoned in the eighteenth and nineteenth centuries in favor of Majunga. Relics of pottery and glass that were collected on the surface are dated from the fifteenth to the nineteenth centuries. Vegetation has caused significant damage to the mausoleums since the visit of Jully almost 70 years ago (Jully 1898).

In their article "Madagascar vu par les auteurs arabes avant le XIe siecle ["Madagascar seen by Arab authors before the eleventh century"], M. and Mme Faublée (1963) felicitously clarify a question that is very poorly understood. On the other hand, the chapter that J. Kirkman (1964) devotes to Madagascar, the Comoros, and to Mozambique in his work "Monuments de la Côte orientale d'Afrique ["Monuments of the east African coast"] is of an inferior quality to the excellent developments relating to the ancient sites in Kenya and Tanzania.

The site of Talaky was discovered and probed in southwest Madagascar. Prospecting done on the Mahafaly coastal plain has been reported in *Revue de Géographie* (Vérin 1965*b*). More recently, relics were brought to light by Battistini and me in the point of Sarodrano. It seems that the inhabitants settled on a series of consecutive establishments made by the natural advancement of "arrows" of sand piled one on another. Each time the extremity was invaded by the mangrove, it was necessary for the people to resettle themselves further inland. The most recent site (Sarodrano III) is certainly more ancient than the Vezo culture, for the remains of earthenware are still visible today. Radiocarbon datings are awaited for these sites of Sarodrano, as well as for those of the Tsiebo property near Manombo. A detailed account will be given in the next *AP* report.

The general investigation mentioned in the last *AP* report on the sites of Madagascar (Vérin 1964) is in process. In the same area, J. Poirier (1964) has published a useful plan for the ethnotopographic inventory of Madagascan soil.

Concerning the sites of Imerina, A. Mille, technical collaborator at the Centre d'Archéologie, systematically pursued locating these sites by aerial photography. They were identified by deep moats that are still very visible in the landscape.

The work sessions were organized with the students of ethnology in Imerina in the cave of refuge of Andavadompy, to the west of Antsahadinta. In April 1966, the site of the ancient village of Angavobe was also made the object of a work party of students. The terrace system that supported the houses was mapped, and excavations revealed graphited pottery, very well baked.

I acknowledge the help of C. Gachet in locating the site of Angavobe (Vérin and Gachet 1964). Moreover, Gachet had a talent for pointing out interesting caverns near Ankazobe, a zone of Talata-Angavo. Finally, Raparison (1964) dedicated an article to Ambohijoky, an old historical site that ranks among the ancient sacred hills of Imerina.

The excavations of Vohitrandriana described in a previous report of *AP* (Vérin 1964) revealed an ancient civilization at Lake Alaotra, in which the red graphited pottery ranks among the most beautiful of eighteenth century Madagascar (Battistini and Vérin 1964*b*). The civilization of Lake Alaotra, before the Merina conquest, is enlightened by the report of F. Martin who came, from one part or another, to war in that country during the second half of the seventeenth century. J.T. Hardyman (1966) recently wrote "Outline of History of the Sihanaka" which will be published soon.

In the region of Betsileo, extensive excavations were led by me, R. Battistini, D. Chabouis, and E. Ramilisonimna in December 1964 in the caves of Isandra, 21 kms to the west of Fianarantsoa. In a chaos of rocky debris, the ancient Betsileos had erected a true city of refuge where dwellings existed, with nearby ranges for cattle and a granary for rice. Judging from the importance of a number of domestic utensils and toys that were found in the sites, a significant number of women and children sought refuge there. These Isandrians were cultivators; they stocked and sifted rice in the caverns. They also produced corn. Moreover, they possessed herds of zebu and ate their meat. Several fish bones were recovered also; analyses of refuse has not yet been made on sufficient quantities to know whether pork was forbidden, as it was in numerous regions of Betsileo. Iron was known and utilized; the ancient inhabitants broke up rock for their constructions and, according to their traditions, carved wood to build the walls of their houses.

The Isandrian pottery (eighteenth or nineteenth century) presents certain analogies with the Sihanaka pottery from the same era that was recovered at Vohitrandriana. The resemblances are marked on certain types of objects, on the glazes, and on several motifs used; however, pottery is not found anywhere at Lake Alaotra as fine as the ceramics with sides at Isandra.

Archaeological excavations, and secondarily, the traditions concerning the ancient state of insecurity, has permitted recovery of many aspects of the Betsileo culture of the Madagascan era of the nineteenth century, and perhaps of the eighteenth. But up to this time, we have not found any more ancient relics in Isandra; it is all the more regrettable, since according to Betsileo traditions, in the beginning, the country was occupied by people of whom we would know nothing, if it were not for the enigmatic names of Ngola or Taimbalibaly that have survived and for the evidence that the people lived in caverns. The caverns of Isandra, delivered to substratum, have not, for the moment, presented any ancient artifacts that correspond to these mysterious people of Ngola.

We previously indicated the work carried out in the gorges of Manambolo (Vérin 1963); the results were published by Babin (1965) and Chippaux, Babin, and Karch (1965). The rock-shelters situated in the karstic gorges of Manambolo in the Bekopaka region that have thus been explored contain burials that the inhabitants of the place believe to be those of Vazimba ancestors. The skeletons are laid down in canoes with several objects, especially adornments in symbiosis. In the two sites visited, the skeletons became the object of an extensive anthropological study that has provided precious materials in a discipline still very neglected in Madagascar. The burials are not ancient, but the individuals that they contain belong to an original ethnic group of which little is known.

Other grotto locations that contain traces of dwellings or of sepulchers were recovered by members of the Club de Speléologie—particularly by M. and Mme (née C. Ravelonanosy) Duflos (1965) in the southwest karstic region, as well as by G. Coquet and J. de Saint-Ours (1964), in the grottos of Andrafiabe in Ankara, to the north of the island.

RESEARCH

Bibliography of the Social Sciences and of Madagascar in General

I am mentioning here only work that is able to help clarify archaeological perspectives in the realm of the social sciences. Exhaustive bibliographies permit one to adhere more and more to current developments in the most diverse disciplines. Among these bibliographies, let us cite those established by Valette (1963) for the social sciences and history; the forthcoming volume of Faublée (1964).

Museology, Art, and Technology

Following the exhibition "Sakalava" (1963) and "Potérie malgache" (1964), the Département d'Art et d'Archéologie, Université de Madagascar, organized an exposition concerning the Zafimaniry (Zafimaniry etc. 1964). This population, which was formerly visited by R. Linton, lives in the forest zone, 80 kms to the east of Ambositra.

Many objects of the Zafimaniry material culture were made of wood on which were sculptured traditional geometric motifs. I have described briefly in an ethnographic article (1964*c*) the condition in which this forest group perpetuated the ancient Madagascan aesthetic tradition.

For material reasons, the Musée d'Art et de Civilisation de l'Université has not yet been able to display publically the collections acquired, except in the form of temporary expositions.

In 1966, the Centre Albert Camus produced two expositions—one relative to African art in Madagascar, the other to the manufacturing of ceramics in Imerina. Pieces lent by the university were shown (Catalogue des Oeuvres d'art etc. 1966).

The Musée de l'Homme, the department of Madagascar created by the initiative of J. Millot and directed by E. Vernier, is enriched with magnificent ethnographic collections brought together by E. Vernier from Madagascar during 1963. All the collections of this department are now being reorganized and catalogued to include those that could not be shown up to this point. The publication of a complete catalogue of objects of the Musée de l'Homme is impatiently awaited by all *Malgachisants*.

A study on the world distribution of beads, necklaces, and jewelry is about to be published by W. G. N. van der Sleen. His chapter relating to Madagascan beads will appear in issue number 2 of *Taloha* (van der Sleen 1966).

The gigantic canoe of Didy *(lakamena)*, placed in the collections of the Département des Sciences Humaines was described by Hardyman (1966). It is a testimony of the time when navigation was important in the region of Lake Alaotra.

Knowledge of archaeological pottery in Madagascar is made easy by the description of archaisms of traditional pottery that are still in existence. In this respect, one will consult with profit the article that J. Dez (1965*b*) dedicated to the pottery of Soamanandrariny in Vakinankaratra. Dez also describes (1965*a*) the human figures in the funeral art of this region.

Without a doubt, Madagascan funeral art is one of the most interesting manifestations of Madagascan aesthetics, whether it is at Vakinankaratra, among the Sakalava of the west, or among the Antanosy-Avaratra in the region of Fort-Dauphin. Of a more general, although briefer nature, I have summarized the different manifestations of contemporary Madagascan art in *Madagascar aujourd'hui* (Vérin 1965) and pointed out in a report the sufficiently complete panorama that Mme Urbain-Faublée gave on the art of Madagascar (Vérin 1964*a*). Traditional Madagascan music remains in the line of preoccupations of local scholars, such as Razakandraina (1964), who has evoked the musical folklore of the island, and F. Rahanivoson (1966), who has described the *hiragasy*, an aesthetic Merina manifestation where song and dance blend.

Ethnology and Ethnography

A retrospect of ethnology and of other social sciences has been written by Deschamps (1966) in *Civilisation malgache*. In a contribution that appeared in *Annales des Lettres*, Volume 3, Poirier (1964) enumerated the birth rites among the Bezanozano; the article announces a following monograph (now in preparation) about this tribe.

The traditional Merina society has been made the object of pertinent observations of Ramasindraibe (1964); his articles appeared in *Fokonolona*, a monthly magazine of synthesized articles. J. and M. Faublée revealed (1966) the contents and the sense of certain forbidden *faly* in southwest Madagascar. The Antaimoro custom of *fafy*, an impediment to marriage which is able to be lifted by propitiary ceremonies, is reported by Dubois (1964) who then revealed his conclusions about missiological perspectives.

The ethnology of the Sakalavas is enlarged in Ottino's very precise study on the subject of the *tromba*. This form of possession functions in the Northwest as a powerful means of social control. Hebert, in his article on Sakalava tattoos in the Madagascan culture (1965*e*) observes with precision a custom in the process of regression, which especially brings a fundamental contribution to the knowledge of artistic motifs to Madagascar, motifs whose essential significance still escapes us.

In the realm of ancient Madagascan cosmography, Hebert has reassembled a series of ancient and current documents (1965*a*). He shows clearly how the Arab contributions interpenetrate the old traditional Madagascan bases. The deepening of the ancient cosmography of Madagascar is able to contribute to the renewal of hypotheses of the cultural history. In his book about the legends of the Southwest, Decary presents texts collected thirty years ago in the schools. These tales come from Madagascan students of an average age of twelve. They were reproduced as written without retouching. The preface of the work points out the state of knowledge related to Madagascan folktales (Decary 1964).

Madagascan ethnobotany, quite poorly understood, is for the first time summarized by

J. Millot (1966). In ethnozoology, one must point out the important works of Hebert: one is about the names of Madagascan animals (Hebert 1965*b*); the other is a description of cattle terminology among the farmers (Hebert 1965*d*).

Legal ethnology greatly developed in Madagascar with the work of the Département des Sciences Humaines, on one hand, and the research of the Centre d'Etude des Coutumes, on the other. Deschamps (1965) showed the religious bases of Madagascan daily law and Faublée (1965) defined certain aspects of common law, according to his research in the South. My study on the Tanala Ikongo (Vérin 1965), already mentioned in my preceding report (Vérin 1964), also touched on *adat.*

The establishment of legislation of a new independent nation presents inevitably the problem of the confrontation of ancient customs with new imperatives, problems clearly evoked by A. Ramangasoavina (1965), the minister of Justice. In this same perspective, Dez (1966) evokes the names of persons in the Madagascan tradition, and Hebert (1965*c*) ascertains that some ancient customary oaths are going to revive with the new conditions of judiciary structures. Rouhette (1965) examines the role of customary law in the rights of people; Pedamon (1965) examines the tendency of family law in Madagascar to harmonize ancient Madagascan conceptions with new necessities arising from westernization. The anxiety of adaptation regarding name and residence is studied by Poirier (1964).

The influence of ancient Madagascan customs is also visible in public law, as H. Raharijaona (1965) shows for the Fokonolona agreements and Maestre (1965) shows in regard to the set of laws concerning the tombs. The interdisciplinary research makes necessary the consultation of two legal fundamental studies for geographers interested in the study of agrarian structures: one by Dez (1965) on the customary leases in use in the Madagascan countryside, the other by Balard (1965) on the *aquae ducendae* rights and its applications to hydraulic farming. This legislation concerning irrigation is reflected in certain regions of the island, such as on the uplands, where a high degree of legal organization is perhaps a result of a Southeast Asian cultural heritage.

Social Geography

The structure of the southern countryside terrain and the structure of the terrain of the Hauts-Plateaux has been made by Berg (1964) and Battistini (1965). The arrival of a team of geographers formed to research social geography at ORSTOM is going to permit the expansion of work in an undertaking which is certainly urgent (Trouchard 1965).

Sociology

In the first place, in sociology, it is fitting to cite the definition and problems that a survey of Merina surroundings presents; the subject is well summarized by R. Razafimphana (1966). Two monographic enquiries are in process at the Département des Sciences Humaines; one is by Poirier about the Bezanozano tribe, already mentioned under Archaeology and Cultural History (Poirier 1964); the other is by Dez, about the Vakinankaratra (Dez 1965*a*). M. Bloch, a student at the University of Cambridge conducted a survey on the social organization of northeast Imerina for eighteen months—principally in the localities of Fieferana and Ambatomanoina. According to the first results of research conducted during 1965, J. Ramamonjisoa, on his part composed for ORSTOM a study of the Merina village of Ilafy (Ramamonjisoa 1965). The monograph of Ilafy defines lucidly the relations between the Hovas (descendants of free men) and the Mainty (descendants of slaves).

As for the region of Lake Alaotra, two contributions require attention: one is by Lapierre (1966) on the transformations of rural society as the result of modernization efforts brought about by public influence; the other is by Ottino (1965) on the social situation of the majority of peasants of the lower valley of Anony.

G. Althabe (1966) has written the preliminary results of his surveys in the region of Fetraomby, in the land of Betsimisaraka, and P. Ottino (1966) describes realistically the crisis of the family system at Nosy-Be where economic evolution brings about a certain independence of the woman; she profits from temporary successive unions in which she contracts and constructs for herself a personal patrimony.

From the point of view of a planner, the questions which the economic development in the rural multitude raises are debated by Rouveyran (1965) and by Dez (1965*b*), who preoccupies himself in knowing if the old *fokonolona* (the ancient basic village entity or cell) is able to be adapted to modernization. The particular problems of the socioeconomics of the South and the Southwest are conceded by Guerin (1964) and Chapuis (1964). Both men measured the practical difficulties by research in the field.

History

Like the social sciences, the history of Madagascar is experiencing a growing popularity favored by the development of instruction at the *Faculté des Lettres*. Deschamps (1964) remembered in *Latitudes* the contribution of French historians from Madagascar, and I have also made a brief summary of the problems of the ancient history of Madagascar in *Rythmes du Monde* (Vérin 1966). The Middles Age of Madagascar, still more poorly understood from the archaeological point of view than from the historical, is considerably less obscure since the publication of an anonymous manuscript of a trader who lived on the island in the eighteenth century. Valette (1964*a*), who presented and edited this manuscript, insists upon the value of another contribution to Madagascan history, the account of François Martin, who was the first to go among the Sihanaka in the seventeenth century. Another traveller, Robert Drury, represents another essential source of the history of the Madagascan people of the West and Southwest in the eighteenth century. His paper is summarized by A. Mavrocordato (1966).

Madagascan numismatics, almost completely ignored, is enriched by the works of J. and S. Chauvicourt (1965) and Ratsimandrava (1965). In a related area, Decary (1964) describes the ancient administration of gold in Madagascar.

The accounts of Fontvieille (1964) on the interpretations of the name Madagascar in the light of Portuguese documents, of Pain (1964) on the discovery of a stem of a ship (not dated), and of Hardyman (1965) on the excavations of the canon of Ambavatafondro, each bring a useful stone in the edification of Madagascan history. The study of Ravoajanahary (1965) on the Merina king Ralambo and his legends reinterpret some documents that originate principally from the history of kings *(Tantaran'ny Andriana)* by R. P. Callet. The account of ancient computation of Madagascan years by Hebert (1966) brings many historians into agreement on already contested events.

The development of knowledge of Madagascan history of the nineteenth and twentieth centuries owes much to Valette, the director of the Archives de la Republique which publishes abundantly inedited or ignored documents. One recent article (Valette 1965*b*) publishes the papers of Bojer and Hilsenberg who traversed Imerina in 1822–1823; one notes (1965*a*) the utilization of *tanguin* (ordeal) in Imerina in 1830; one (1964*b*) is an important entry in the catalogue edited by the Association des Amis du Musée Jean Laborde on the occasion of an exposition relating to Madagascar under Radama III. It is under the reign of Radama II that is fixed the critical epidemic of *Ramanenjana*, as described by E. Appolis (1964). Finally, M. Petit and G. Jacob (1965) united the methods of historical research and of geographic analysis to describe a colonization attempt in the Bay of Antongil.

Language and Linguistics

Madagascan language and literature is experiencing a remarkable rebirth since independence which almost coincides with the creation of the Département de langue et litterature malgache, directed by S. Rajaona. With his co-workers, R. Rajemisa-Raoelison, C. Ravoajanahary, and L. Andrianarahinjake. Rajaona is establishing anthologies and dictionaries whose publication will be precious to all *Malgachisants*.

J. Faublée, who in 1965 made a study-tour of southeast Madagascar, is preparing a critical edition, of *Sora-be,* that is written in Arabic-Madagascan. He has also given some interesting insights on the structure of the language and its dialects (1964*a*, 1964*b*, 1965). The dialectology is equally one of the favorite themes of Dez, to whom we are indebted for a first classification of the dialects of Madagascar (Dez 1964). This linguist has, moreover, exposed the Madagascanization of the Madagascan borrowings from European languages (1964–1965); but especially, the seekers in archaeology and in cultural history will profit from his article (1965) on the hypotheses that are able to express linguistics, compared to the use of archaeology. It is a question of a veritable reconstruction of the protoculture, with the aid of facts of the language. The reconciliations with the Indonesian common people are very numerous in the realms of slash-and-burn agriculture, food, hunting, fishing, iron works, ceramics, clothing, habitation, music, navigation, weaving, basket-making, etc. The Arab-Bantu contribution is very notable in the area of agriculture, breeding, ceramics, clothing, measures, and music.

Among the other linguistic studies, one bears in mind the works of B. Domenichini-Ramiaramanana on the evolution of the popular vocabulary of a song; of Poirier (1966) on heteronyms (words with opposite meanings); of L. F. Flutre (1966) on Toponymy, which announces the following publication of a large dictionary of Madagascan toponyms. Finally, those who are interested in Madagascar, and more particularly, interested English-speaking investigators, will be happy to use the *Malagasy Introductory Course* (Garvey et al. 1964), an excellent method for learning the language by direct method; however, the following editions ought to concentrate on correcting the imperfections of detail.

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Ann. Let.	*Annales de l'Université de Madagascar, Faculté des Lettres et Sciences Humaines,* Tananarive. Cujas, ed. Paris.
AP	*Asian Perspectives.* Honolulu: Social Science Research Institute, University of Hawaii.
BAM	*Bulletin de l'Académie Malgache,* Tananarive.
Bull. Mad.	*Bulletin de Madagascar.* Tananarive: Service de l'Information.
Bull. Soc. Preh. Fr.	*Bulletin de la Société préhistorique française.* Paris.
Cah. ISEA	*Cahiers de l'Institute de Sciences économiques appliquées,* Boulevard des Capucines. Paris.

Cah. ORSTOM, Sc. Hum.	*Cahiers de l'Office de la recherche scientifique et technique outre-mer, Sciences Humaines.* Paris: 24 Rue Bayard.
Civ. Malg.	*Civilisation malgache.* Séries Sciences Humaines. Cujas, ed. Paris.
Ét. dr. af. malg.	*Études de droit africain et malgache.* Vol. 16, *Études Malgaches.* Cujas, ed. Paris.
L'Homme	*L'homme, revue française d'Anthropologie.* Paris.
Journ. as.	*Journal asiatique.* Paris.
Lat.	*Latitudes.* Revue des anciens élèves de l'École de la France d'Outre-Mer. Paris: 2 rue de l'Observatoire.
Madag. Rev. Géo.	*Madagascar, Revue de Géographie,* Tananarive. Cujas, ed. Paris.
M	*Man.* Royal Anthropological Institute. London.
NRE	*Notes, Reconnaissances et Explorations.* Tananarive.
Rev. ENLOV	*Revue de l'École Nationale des langues orientales viventes.* Paris: 2 rue de Lille.
Rev. Mad.	*Revue de Madagascar,* Service général de l'Information. Tananarive.
Studia	Centre de Estudos historicos ultramarinos. Lisbon.
Taloha	*Taloha l-Archéologie.* Annales de l'Université de Madagascar. Série Lettres et Sciences Humaines.

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East Malaysia and Brunei

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INTRODUCTION

There have been two main emphases in Bornean archaeology in 1966:

1. the rounding off of long-term field projects started a decade or more ago, particularly the Sarawak Museum program at Niah Caves (begun in 1954) and the iron-age open sites of the Sarawak River Delta (begun in 1947); although further detail work may be necessary in the field and extensive further object analyses are definitely required, the ground work is basically ready for full monograph reports;
2. the continuing, extending, and developing of the hitherto smaller and newer programs for Sabah and Brunei; by the end of 1966, there was a firm base for fuller archaeological field studies in both; the work is to be carried out on lines broadly developed in Sarawak since 1945 (and with interchangeable field personnel). The object here is to insure that a thoroughly analyzed approach be applied to the prehistory of west and north Borneo, with maximal emphasis on sound field disciplines for collecting factual data and only secondary insistence (at this stage) on theoretical approaches not yet proven suitable (or necessarily even applicable) to the area, however useful such conceptions may be elsewhere in Southeast Asia.

These 1966 notes will be treated geographically, with the above two considerations as overall background in the reader's mind. No new data are available for Borneo's fourth and largest sector, Indonesian Kalimantan, and there is no direct report of any field activity there. Some of the largest questions for the areas' archaeology, both the open-site "iron-age" areas and the earlier "stone-age" caves, are now in urgent need of examination in Kalimantan, since slow but steady progress has been made in Sabah, Brunei, and Sarawak—which were almost as "blank" on the archaeological map two decades ago as Kalimantan is today.

SARAWAK

Open Sites

I began the large-scale open-site excavations of the T'ang-Sung-Yuan trade entrepot sites (ca. A.D. 700–1350) in the Sarawak River Delta nearly twenty years ago with no financial support. The site is now well known and work was continued with special reference to several outstanding problems in 1966. Now, basic support for the project is from the Sarawak government. Groups of volunteers, notably from Bau Government Secondary School, work on the simpler jobs; and this year, during two months of complex new work, we had the active on-site cooperation of S. J. O'Connor, Jr., of Cornell University. (O'Connor was supported by a generous grant from the David Rockefeller II Foundation of New York.) Additional major help was received from the Lands and Surveys Department through Eric Lawrence, C.B.E., who provided aerial-reconnaissance photograph support to solve some silting and swamp-formation problems in the older iron-trade sites. The Geological Survey provided assistance in answering some difficult problems on ores and slags, and Te-k'un Cheng, of Cambridge University, made a particularly useful visit and relevant on-site suggestions regarding some of the earliest Chinese ceramic and stone (for iron-working) material.

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The Sarawak River Delta sites have been treated as part of one large-scale system of archaeological deposits. They have been excavated with an exact statigraphy when circumstances permitted, so it is possible to correlate both lateral and vertical relationships for all the main types of humanly imported materials brought to, worked on, or discarded at the principal sections of the delta and studied since 1946—Sungei Jaong, Tanjong Kubor, Tanjong Tegok, Buah, Bongkissam, Bukit Maras, and Muara Tebas. It has thus proved possible, with the application of statistical methods supplementing experienced observation, to trace (for instance) shifts of trade focus from the earliest locations (ca. A.D. 700–750) to the sudden collapse of the whole area and its extinction as a habitation area until historic times (i.e., A.D. 1350 to 1839); or to measure changes in the size and style of clay crucibles used for iron-working over the six centuries of this occupation.

New work in 1966 was mainly directed to testing previous ideas on specific points and refining our understanding of them. For this purpose, we chose small sections of selected old sites—Jaong, Buah, Bongkissam, Maras—and reexamined them, usually with fine 1-in. layering, by exactly measuring (by weight, size, and number) all artifacts, and where possible correlating them with soil samples and other criteria. I undertook most of these correlations with O'Connor's help. For the iron-work research we received the aid of the Sarawak Museum staff, notably Haji Zaidon (on-site) and Carla Zainie (who reconstructed the Chinese stonewares back in Kuching). A very full report is now in first draft, though it will require much further technical work, including new object analyses through Cornell University and the Corning Museum, New York. The Sarawak government has promised a grant towards publication.

I hope that some of the simpler techniques worked out here in the Sarawak River Delta may be found applicable to fieldwork in other rather "mixed-up" open sites elsewhere in Asia, from which, in most cases, little really scientific and objective descriptive data have been produced so far. Even the dreariest-looking iron-slag proves suspectable to disciplined classification and enumeration, and now we find that in at least two other sites in this part of the world, the whole subject of slag has been put aside and not considered in the archaeological reports. (In one case, though the presence of slag was evident, it is not even mentioned in the published text.) Where slag is present, it is likely to be crucial to explaining the presence of human beings at that place at that time in the past.

The year 1966 was not, therefore, a year for many "discoveries" in the delta, though a few more lovely whole T'ang pieces were recovered. However, on almost the last day of the "season," during the main fieldwork at Bongkissam (2 mi. downriver from Jaong), part of a very simple buried stone structure was exposed—the first of its kind found in Borneo. A layer of roughly shaped and carefully arranged bricks covered a pit of golden sand in which were embedded a fine silver reliquary deposit box containing or associated with some 140 gold objects (including human figures, a snake, an elephant, a tortoise, a sun, and a moon) and small jewels. The inference was of Tantric Buddhism, and to relate the finds with the early finds of Quaritch-Wales in Kedah seems not too remote. A special report on this aspect of the treasures has been prepared by O'Connor, who has a wide knowledge of Tantric Buddhism (see O'Connor 1966). An earlier note has already indicated similar Tantric influence, of about the same period, in the golden keris handle from Balingian now in the Sarawak Museum (Harrisson 1966*a*).

Broadly, the main message of the extensive Sarawak River Delta study can be fairly securely summed up:

1. Sarawak River Delta sites made a massive iron-age impact on the coastal sector of southwest Borneo; the impact was not strong until the (mainly late) T'ang Dynasty.
2. There are some Chinese technological affinities (notably in the correlated tools); but other finds have southern Indian inferences (with Coramondel Coast, and perhaps to the early "Persian" settlements of Gujarat, which have already proved important in eighth–tenth century Java-Sumatra—and later as a first impulse of Islam, mixed with Indian mysticism).
3. Evidence of the development of iron working in places extends over more than 1,000 yds. of what is now swamp-creek, and at Buah reaches to depths of more than 8 ft. of almost solid slag reject.
4. Everywhere, this activity is associated with imported Chinese stoneware-porcelains, which we have classified into 22 objectively identifiable types; at Jaong, Kubor, and Tegok, some of these are T'ang, and some are probably pre-T'ang; elsewhere, artifacts are wholly Sung, with a negligible terminal Ming trace.
5. Locally made earthenware is also abundant and includes one type related to prehistoric Chinese pottery and another that is still continuing in contemporary Bajau ("Sea Gypsy") pottery. W. G. Solheim II has already published a full typology of this material from the Kubor site (Solheim 1965), and on that basis I have extended the study over a wider field.
6. Glass beads are fairly common, and over 95 percent of them are small monochrome, of types already familiar from the Malayan west coast and elsewhere; an earlier series of analyses published in *Man* have now been supplemented by much more detailed tests from Corning Glass (see "New Analyses of Excavated Prehistoric Glass from Borneo" in this volume). No trace of "punty caps" or other signs of local working have been recognised, and glass in non-bead form is rare in the delta.

It is clear that this was a *major* trade entrepot for over six centuries that probably linked the "Indian" west and the "Chinese" north. No indications of the existence of any such activity appear on the numerous scholarly maps reconstructed from purely textual sources, all of which ignore southwest Borneo over this period. The discrepancies are too serious to be ignored any longer. Either the textual scholars are wrong, or we have completely misunderstood the delta data.

The Niah Caves

In view of our heavy delta "summer-session" commitment and other work to be described, the 1966 program at Niah was largely concentrated upon the removal of a large series of stone-age burials left in situ (some since 1954); we had postponed the work until we could obtain outside assistance on the scale and of the quality that this rich and well-documented material clearly deserved, in terms of physical anthropology as well as prehistory. After several failures, mainly owing to the lack of physical anthropologists available to tackle the work, a considerable part of the task was completed in the summer of 1966 by Sheilagh Brooks, of the University of Nevada, aided by her husband Richard Brooks; the two worked in general coordination with Barbara Harrisson, who is responsible for the ethnology and artifactual associations of all the Niah neolithic burial material. This work, here in Sarawak and back in the United States (where over 100 skeletons are now on loan from the Sarawak government) was made possible by a grant from the National Science Foundation, Washington, D.C.

Now that this previously "left in" skeletal material has been properly cleared, it is possible to remove the remainder of the deposit inside the West Mouth—except for permanent in situ exhibits. This work, to be resumed in February 1967, will complete the full excavation of all the mouths of Niah Great Cave and all the caves believed—after exhaustive exploration by climbing, mapping, and helicopter—to be significant there at this time. A British Broadcasting Corporation film unit will also be filming the round-up phase as a permanent Niah record for commercial television and other educational purposes. The film (16 mm, color, with on-site synchronised sound) is being made in two versions, the longer (one hour) version is for strictly educational and academic showings, financed by profit from the shorter commercial version (25 minutes). Hopefully, the longer film will be widely available for use in Southeast Asia.

I gave a short report on the work at Niah at the Eleventh Pacific Science Congress in Tokyo (Harrisson 1967), and I presented a longer report on the Niah work (from 1954 to date) at the American Anthropological Association meeting at Pittsburgh, Pennsylvania, in November 1969. The Pittsburgh report aroused considerable interest; it will appear in *AP* XII. A more specific account of the early chopper tools, backed by an extensive series of exhibits, was given to the Pacific Science Congress at Tokyo in September, when the whole question of palaeolithic tool typologies was raised (for example, the absence of anything equivalent to the "Hoabinhian" in West Borneo).

A number of other Niah reports are in press, including a full account of an important late burial cave (with radiocarbon dates from 1180 B.C. to A.D. 1650) in upriver Niah, scheduled for publication shortly in *JMBRAS*.

Other Caves in Central-West Sarawak

Preliminary accounts of the helicopter reconnaissance flights far beyond Niah, made possible through British Army cooperation late in 1965, were given in *JMBRAS* (Harrisson 1966*b*), and further news is promised. It can now be said that the objectives set out there were achieved. This is an independent operation not directly tied in with the complex of interrelated data from Niah's long-term thinking and, therefore, slow-time publication in full.

The caves in the headwaters of the Kakus (Harrisson 1966*b*: 192) were confirmed by fuller ground analysis. We have yet to find a good, big dry cave *far inland* in Borneo with adequately convincing pre-neolithic remains. Hopefully, we can pursue the search further at Batu Punggul in 1967 (cf. Harrisson and Reaves 1966), but new political and communication difficulties are now present in the Sabah-Kalimantan border area. Here again, the final answers probably may be best sought further south in central Kalimantan, still archaeologically unexplored, with several known rich limestone cave formations. (On this, I hold a good deal of eye-witness information at the reconnaissance level and shall be glad to make it available to others under suitable circumstances.) The crying need now in Borneo archaeology is for new work on a well-planned scale in Kalimantan, especially in the far-interior limestone caves. Indonesian archaeological techniques are of a high order; and with the ending of military confrontations, we may hope for archaeological advance here.

The Sarang Caves in low hills near Tatau, about one hundred miles south of Niah, were remarkable in holding the third set of cave paintings now known for Sarawak—each set quite unlike the other two. The earthenware pottery and the stone "tools" that were found in the Sarang Caves—the excavations are incomplete—are only barely related to artifacts found at Niah, less than one hundred miles away over the coastal plain. These local "specializations" of the later pre-Iron phases in west Borneo have reached impressive documented proportions since we began this work at Bau, about two hundred miles to the south of Sarang Caves two decades ago. The artifacts present some real problems for formal archaeological theory. For instance, the quadrangular adze, supposedly typical of the whole area in the Late Neolithic phase, is not only absent as an effective tool from parts of Borneo, but apparently is *not* represented by any close, acceptably contemporary polished-tool equivalent in a large part of the south-west.

Recovery Jobs and Lesser Sites in Sarawak

Close cooperation between the Public Works Department and other government bodies has long ensured the Sarawak Museum of receiving advance notices of new works likely to have archaeological implications. Normally, we "clear" sites for quarrying, road-making, or other development almost at once. But the network of caves in limestone that the government recently required for use near Batu Kitang, 7 mi. from Kuching (partially explored previously) presented some difficulties. However, with Archaeological Assistant R. Nyandoh and Che Sella bin Hamzan working under the direction of Lucas Chin (assistant curator for the museum), and with my help (I retired in September), this area was declared free for quarrying by the end of December.

Some interesting early earthenware was recovered. But as is usual in this area behind Kuching, no formal stone tools of "recognized types" were found even in a clearly stone-age context—a phenomenon discussed long ago by Michael Tweedie and me in the first published account of a Borneo excavation (Harrisson and Tweedie 1959) for the adjacent Bau district.

A more limited clearance task than that of the caves near Kuching but a very fruitful one was a similar clearance prior to quarrying in the Bakong River caves near Miri, Fourth Division. The project was undertaken by a museum unit supervised by a qualified archaeologist; fieldwork was completed in September.

Mrs. Woodfield, from funds provided by the Sarawak Museum (who once again continued their generous support of our researches), built a small laboratory workshop at Miri to reconstruct some of the really striking big burial wares from the West Mouth at Niah (mentioned above) in exact detail. This work was nearing completion at the end of 1966.

EAST SABAH

The Madai Caves, Palaeolithic Evidences

Continuing the program outlined in last year's *JMBRAS* notes (Harrisson 1966*b*:193), a further joint Sabah-Sarawak unit extended the previous cave reconnaissance of the Kinabatang and Segama Rivers further south through the Lahad Datu district to the Madai caves. Much of the hard work in a sociologically and politically "delicate" area was organized by Barbara Harrisson during October to December 1966 on funds supplied by the Sabah government as part of a continuing program of orderly search. Analysis of excavated material continued through December, but one point of immediate interest can be discussed safely at this stage: the discovery of a series of stone artifacts in a hitherto "sealed" part of a large cave in the Madai hill formation.

The stone artifacts are associated with a few fossil food remains, separated from a pottery and neolithic level by a sterile band. As at Niah, the stones, though patently brought in and shaped by human agency, are very crudely formed; most are pieces of large pebbles in "chopper tool" and other shapes. The general relationship is with the palaeolithic tools from Niah (discussed above), and none really fits the formal typologies of the mainland. Since this is only the second find of "palaeoliths" in a stratified habitational context in Borneo, or anywhere in Malaysia, we hope to accelerate publication in this case (cf. "Baturong Caves, etc.," below); plaster casts are being made for circulation and comment (our practice at the museum), along with the usual accurate drawings and photographs.

Baturong Caves; Protohistorical Carvings

The Baturong limestone formation, two days hard walk from Madai (mentioned above), was fully explored in 1966. An especially interesting discovery here was the recovery of four carved ironwood figures which have definite named places in the genealogies of the local Idahan population, now Moslem, who keep family trees whose roots reach back into a pagan mythology—approximately in the style of the Royal House of Kedah,but with more information about the pre-Islamic period. As we already have several ironwood coffins from the Painted Cave and elsewhere at Niah that date back one thousand years and over by radiocarbon dating, this local attribution presents no technical impossibility.

The Idahan genealogical material is rich. To explore it more fully, its chief scholar, Imam Johan, and I were invited to a meeting with Brunei scholars over the 1966 Christmas holiday at Brunei, in an attempt—a fairly successful one—to line up some sort of protohistorical material for a remote corner of northeast Sabah with *(a)* similar material from the ancient Royal House of Brunei; *(b)* with the upland Kelabits and Muruts, who claim their ancestors were also in part coastal predecessors of the pre-Moslem sultanate; and *(c)* with the Iban Sea Dayaks whose elaborate *tusut* folklore strongly overlaps all of these (cf. below). It is slowly proving possible to trace out common elements in written or unwritten "trees of life" from widely separated parts of Borneo and to associate these, occasionally but encouragingly, with archaeological or other material phenomena which make sense in such associations—as in the present instance at Baturong.

More specifically, so far as Sabah is concerned, we are now getting to know quite a lot about the prehistory of the state, hitherto a complete blank or absurdly misreported in the opening parts of most historical and scholarly volumes purporting to present accurate histories of some striking respects from positions further south in Borneo, especially in the later phases of the Stone Age and in the earliest period of metal's impact. In some ways Sabah appears to belong to a very different culture pattern from the rest of Borneo during the prehistory period—and indeed, since. Hopefully, we can sort out what we know of this peried in a special monograph on "Sabah before the Sixteenth Century" as a joint Sabah Society and Sabah Museum enterprise in 1967–1968. Meanwhile, the Sabah government has once more made funds and other help available beginning in April 1967 for a continuation of the present study, and I hope the work can be extended in and on from Madai-Baturong towards the Kalimantan border.

BRUNEI

Museum Opens with Important New Collections and Site Protection Measures

The promises in last year's *JMBRAS* notes (Harrisson 1966*b*:194) have been fulfilled. All the collections made in Sarawak for Brunei over the past fifteen years have been returned there (a big launch load) to a now properly set-up and staffed Brunei Museum—though it is still in temporary quarters. This is under an able, qualified curator, Pengiran Shariffuddin bin Pengiran Metali, who was specially selected as candidate for the post ten years ago in Brunei, and subsequently has studied both in Sarawak and Europe (where he holds both parts of the Museums' Association diploma). During 1966 I was called in by the curator to consult with the Director of Public Works on the important question of the arterial road now being built from Brunei Town to the projected "new port area" at Muara. This would have cut through the extremely important old city, Kota Batu, whose archaeological potential has already been richly demonstrated in earlier reconnaissance work (published in *SMJ* etc.). All the land proved as "archaeologically positive" in the Kota Batu sector—which was overthrown by aggressive Spaniards in the sixteenth century—had already been acquired by purchase as a Museum reserve, a step I initiated in the early fifties. Despite the very high cost of diverting the highway up a steep hillside to bypass the area, the Brunei government, with great foresight, agreed to the museum representations. Therefore, the whole site is now saved for coherent future study and development, under museum control. At the end of the year, the Brunei government was good enough to ask me to take on a three-year consultant post, part-time, in conjunction with my wife Barbara. We hope, therefore, to be able to assist in developing this promising project under Pengiran Shariffuddin. The next priority is to build a real museum and related workshops (at Kota Batu).

SUMMARY

Stray Finds for Borneo

Sarawak has been fairly well combed by now. We cannot expect too much in any one year. The most interesting acquisitions from private or casual sources continue to be family heirlooms and shamanastic regalia (cf. Harrisson 1966*a*:175–181). Brunei and Sabah, on the other hand, are newcomers to the museum field, and research staffs have to "train" the public to bring things that seem odd, queer, or merely "impossible" to the Museum. The potential is difficult, but high. Some very good bronzes and T'ang ceramics have thus been obtained by Pengiran Shariffudin in Brunei during 1966, while Sabah seems to specialize in finding and reporting polished and other types of late neolithic stone tools (very rare indeed in Brunei); one such tool has been well illustrated by Michael Chong (1966). The curator in Sabah, R. J. Brooks, is equally aware of the problems mentioned above.

In Sarawak itself, the best progress at this level has been with the collection of the previously unrecognised forms of "indigenous writing" in native scripts. This subject was touched upon in the last paragraph of my *JMBRAS* notes last year (1966:196). Thanks to the Asia Foundation, the projected monograph on this exciting subject was successfully completed, published (and sold out!) in 1966 under the title of *Borneo Writing*, as the first Sarawak Museum Special Monograph (426 pages). Since then, further information has come to light on the subject; it is to be included in the next ordinary volumes of the *Sarawak Museum Journal*. The 1966 issue (460 pages) is due in April-May 1967. These issues also contain new studies on specifically archaeological materials from the caves (discussed in sections above) by the Earl of Cranbrook, Lord Medway, J.E. Hill, C. Woodfield, Michael Fogden, J. L. Reavis (see 1965 notes), Barbara Harrisson, and myself.

For reasons already sufficiently indicated in the preceding paragraphs, my wife Barbara Harrisson and I hope to spend seven to nine months of every year in and about Malaysia. But from now on, our basic address will be: Southeast Asia Program, 100 Franklin Hall, Cornell University, Ithaca, New York. Our work will be specifically identified with Southeast Asia, and we shall be most glad to see visitors. I shall be senior research associate in the Department of Anthropology, Cornell. This article is a revised version of my "Recent Archaeological Discoveries in East Malaysia and Brunei," *JMBRAS* XL. (Part I), 1967, pages 140–148.

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The Ryukyus

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Distinctive progress in the archaeology of the Ryukyus has occurred along several fronts

MUSEUMS

The new Ryukyu Museum, located in Shuri near the University of the Ryukyus, will be opened shortly. It will afford a great deal more space for archaeological exhibits, both of museum specimens and of materials on loan from other groups, such as the Ryukyu Cultural Assets Protection Commission.

In addition to the museum, important small collections of artifacts are held by several local high schools as well as the Naze City Office, the Miyako Ryukyu American Culture Center in Hirara, and the Yaeyama Ryukyu American Culture Center in Ishigaki City.

FIELDWORK

George Kerr, of the Honolulu Academy of Arts, conducted a survey of historic sites in Yaeyama during the winter of 1962–1963; he contributed valuable collections of trade ceramics, particularly of Chekiang origin, to the Ryukyu Museum study collections. The sherds were examined by Fujio Koyama during April 1963. The collections are valuable for further study at the Ryukyu Museum and the Honolulu Academy of Arts. An exhaustive catalogue of photographs of Ryukyuan cultural and historical objects accompanied by short notes was also prepared by Kerr; the catalogue remains at the Honolulu institution.

I, as research associate of the Honolulu Academy of Arts and recipient of funds from the Augusta Hasard Fund of Yale University and the Canada Council, carried out test excavations in the Ryukyus for a doctoral dissertation in anthropology at Yale University—from November 1962 to May 1963 and in September 1965. I also did fieldwork in eastern Taiwan during June and July 1963 and in July 1965.

Erika Kaneko, of Tokyo Metropolitan University, excavated an early historic site at Boramoto-jima, a long peninsula on Miyako Island, during the autumn of 1965.

Under the direction of Hiroe Takamiya, of Okinawa University, the Ryukyu Government Cultural Assets Protection Commission has completed two seasons' excavation of the

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Katsuren Castle site, which was occupied from the thirteenth to the sixteenth centuries. The results of this excavation, as well as work done by Takamiya on sites yielding fossils of possibly worked deer bones, were presented in a paper at the Eleventh Pacific Science Congress. I believe that statements that these fossil deer bones represent human artifacts should be regarded with some skepticism, since the original Ie Jima fossil deer-bone specimens have been lost, and authors such as Te-k'un Cheng point out that Shigeru Tokunaga, who identified the first Ie Jima finds, probably misidentified bones from other sites such as Kuhsiang-t'un, near Harbin, Manchuria, as showing evidence of human workmanship (Cheng 1959, 44, 45).

PUBLICATIONS

Two important bibliographies, both products of the Ryukyu collection of the University of Hawaii, are indispensable for any research concerning the Ryukyus (Sakamaki 1963, 1965).

The literature concerning the archaeology of the Ryukyus has expanded considerably in the past few years. The following is an annotated list of references, in Japanese unless otherwise designated.

SELECTED BIBLIOGRAPHY

CULTURAL ASSETS PROTECTION COMMISSION OF THE GOVERNMENT OF THE RYUKYU ISLANDS

n.d. *Cultural assets of the Ryukyus* (in English).

This publication is a catalogue of all of the cultural assets designated by the Cultural Assets Protection Commission. The abundant photographs are often poor in quality and selection, and the text shows the patent lack of editing that characterizes the Cultural Assets Protection Commission's publications in English. The enumeration and location of the assets is a valuable contribution in itself, however. The objects covered vary from prehistoric sites and artifacts to rare historical manuscripts and unusual botanical materials.

KAGAWA, MITSUO

1965 Kyushu Tōnan-bu [Southeast Kyushu]. In *Nihon no Kōkogaku* II, *Jōmon Jidai*, Kamaki Yoshimasa, ed., pp. 268–284. Tokyo: Kawade Shobō Shinsha.

Includes the most important Ryukyu prehistoric sites in a general chronology of the Jōmon period in Kyushu and introduces the Attabaru radiocarbon date of 1408±80 B.C. as a means of arranging sites both in the Ryukyus and in Kyushu, since there are few radiocarbon dates from the Kyushu area.

KANASEKI, TAKEO

1963 Ryukyu no Hateruma-shima no Shimotabaru iseki [The Shimotabaru site of Hateruma Island in the Ryukyus]. *Nihon Kōkogaku Nempō* 6 (1953): 73.

A brief resume of ten days' excavation of the Shimotabaru site on Hateruma, the southernmost island of the Ryukyus. The site, which extends for about 20 m from east to west and 80 m from north to south, lies on the northern coastal flat of the island, protected by a ridge to the south, and consists of a disturbed surface layer and lower thick shell refuse layer (see below).

KANASEKI, TAKEO, KOKUBU NAOICHI, TAWADA SHINJUN, and NAGAI MASAFUMI

1964 Ryukyu Hateruma-shima Shimotabaru no hakkutsu chōsa [Archaeological investigations at the Shimotabaru site, Hateruma, Ryukyu Islands]. *Suisan Daigakko Kenkyu Hōkoku, Jimbun Kagaku Hen*, No. 9: 1–13.

The complete report of the excavation of the Shimotabaru site, the only prehistoric community thus far excavated on Hateruma and one of the very few documented sites of Yaeyama. The site was also dug by a different group in August 1959 (Takiguchi 1960, *Yaeyama:* 102–109). These earlier excavations yielded stone awls, a coral object which may have been used as a file, fishing weights of round pieces of coral, and a hoe-like artifact of Triton shell *(Charonia tritonis)* (Takiguchi 1960: 107). From the latter excavations, chipped and semi-polished adzes, elliptical and trapezoidal in cross section, and a small amount of thick, reddish, low-fired pottery, some of which had lugs, constituted the major finds. Rare gray, impressed sherds which occurred on the Shimotabaru site

are identical to impressed pottery from northern Taiwan (Kanaseki et al. 1964: Plate XXIX). The authors believe that they can detect a stepped adze form similar to that of Luzon, South China, and Formosa (Kanaseki et al. 1964: 1, 2).

KAWAGUCHI, SADANORI

1963 Kagoshima-ken Ōshima-gun Sumiyoshi iseki [The Sumiyoshi site, Ōshima County, Kagoshima Prefecture]. *Nihon Kōkogaku Nempō* 10 (1957): 96–97.

The Sumiyoshi site was dug under the auspices of the Nine Learned Societies. In this brief report, the author notes that pottery of both the Ushuku Upper and Lower types were found mixed, the former type being the most abundant. Kawaguchi suggests that the Ushuku Lower type, which is earlier in time, may have been intrusive from another nearby site. The possible remains of a house, about 2.4 m by 1.8 m, with a sandy floor and possibly a hearth, were found.

KOKUBU, NAOICHI

1960*a* Kagoshima-ken Tokunoshima Omonawa dai-ni kaizuka, [The Omonawa No. 2 Shell Mound of Tokuno Island, Kagoshima Prefecture]. *Nihon Kōkogaku Nempō* 9 (1956): 91.

Reports on a four-day excavation of the Omonawa No. 2 Shell Mound, one of a series of sites on the south coast of Tokunoshima Island in the central Ryukyus. The total accumulation of shells was about 100 cm in depth and is believed to represent one continuous occupation. The pottery is characterized by a straight mouth, flat bottom, short incised lines, nail impressions, and yamagata, all reminiscent, according to Kokubu, of the Sobata pottery type (Early Jōmon), but in a more advanced form. Shell discs and pendants, wild boar-tooth pendants, and worked long bones were also found.

1960*b* Kagoshima-ken Tokunoshima Omonawa dai-shi kaizuka, [The Omonawa No. 4 Shell Mound, Tokuno Island, Kagoshima Prefecture]. *Nihon Kōkogaku Nempō* 9 (1956): 92.

This is a short report on the excavation in 1956 of the Omonawa No. 4 Shell Mound, in Isen Village, Nishikin Ward, Tokunoshima. The site of the shell mound consists of two coral caves with a flat area in front. The three separate locations produced slightly different assemblages. From the front area, one sickle-shaped implement was recovered. The front area and the east cave produced pottery generally similar to that of the lower levels of the Ushuku site in Amami Ōshima, while the West Cave material generally seems closer to the pottery from the upper levels of Ushuku. Fragments of human and wild pig bones were found in front of the two caves.

1960*c* Okinawa-honto Kudaka-jima no Shimashiyama iseki [The Shimashiyama site of Kudaka Island, Okinawa group]. *Nihon Kōkogaku Nempō* 9 (1956): 94.

The Shimashiyama site is on the eastern coast of Kudaka Island, which lies to the east of southern Okinawa. It was dug by Kokubu in April 1956. The pottery shows an increase in pointed bases, which are of a late time period in the Ryukyus. New forms include an elevated stand and a flat dish. Decorated sherds are rare; the pottery generally resembles that of the upper levels of Ushuku.

1960*d* Nantō no jūkei tarekazari [Animal-shaped pendants from the Southern Islands], *Sekai Bijutsu Zenshū Geppō*, pp. 3–6. Tokyo: Kadokawa Shoten.

An interesting article that brings together material on the shell plaques and butterfly-shaped pendants of the Hirota site on Tanegashima and the Yaejima, Attabaru, Kanegusuku, and Sachihijah sites of Okinawa and links them to Chinese forms of the Warring States. A date of 710±60 B.C. for the Yaejima site (that I presented at the Eleventh Pacific Science Congress) might rule out the Warring States provenience, but a Chinese derivation still seems likely.

1960*e* Okinawa-honto Sanwa buraku Komesubama kaizuka [The Komesu Beach Shell Mound at Sanwa Village, Okinawa]. *Nihon Kōkogaku Nempō* 9 (1956): 94.

A brief report of the excavation of the Komesu site, occupied in the late prehistoric period (first millennium A.D.).

1963 Kagoshima-ken Kuchinoerabu-jima Shirogadaira iseki [The Shirogadaira site, Kuchinoerabu Island, Kagoshima Prefecture]. *Nihon Kōkogaku Nempō* 6 (1953): 71.

Report on the excavation of the Shirogadaira site of Kuchinoerabu Island in the northern Ryukyus. The site is situated about 120 m above sea level, on the south side of a terrace. Over the cultural deposit, there are almost 2 m of volcanic detritus. The occupation seems to have begun during the time span of the Late Jōmon Ichiki pottery type of Kyushu, which appears to be the type brought by the first colonizers to Yakushima as well. Later, Goryō pottery was introduced. Subsequently, the community was abandoned, perhaps because of volcanic activity that still continues on the island.

KOKUBU, NAOICHI, and NAOTAKA MORIZŌNO

1958 Tanegashima Minami Tane-machi Hirota no maiso iseki chosa gaiho [Report on the Hirota burial site, South Tane District, Tanegashima Island]. *KZ* XLIII 3: 1 (151)–31(183).

A key article on the Tanegashima Hirota burial site, which is prominent in many recent discussions of Ryukyu culture history, states that the village site has been found, but that time has not permitted a large-scale excavation.

LEBRA, WILLIAM

1966 *Okinawan religion: belief, ritual, and social structure.* Honolulu: University of Hawaii Press (in English).

A detailed ethnographic account of all levels of religion in Okinawa. Useful for historical insights as well as religion and social structure.

MISHIMA, ITARU

n.d. Nansei shotō tōki bunka no shomondai [Various problems concerning the ceramic cultures of the Southwest Islands (Ryukyus)]. *Kōkogaku Kenyu* 13, No. 2: 46–56.

A full summary of ceramic studies from prehistoric Ryukyuan sites and southern Kyushu with a comprehensive bibliography. A crucial misprint on page 54 attributes a *mei-to-sen* coin to the Ōyama site, when in fact it is supposed to have come from the Gusukudake site.

MITOMO, KUNIGORO

1963*a* Kagoshima-ken Kuchierabu-jima Yumuke iseki. *Nihon Kōkogaku Nempō* 6 (1953): 72.

A brief report of the Yumuke site on Kuchinoerabu Island in the northern Ryukyus, which yielded Ichiki and Goryō pottery under 2.5 m of volcanic debris.

1963*b* Kagoshima-ken Yakushima nangan no iseki [Sites on the south shore of Yakushima Island]. *Nihon Kōkogaku Nempō* 6 (1953): 73.

Describes a one-day excavation of a Yayoi site from the environs of which Ichiki pottery was found. Mitomo thought at the time that this site, on the south shore of Yakushima, represented the southernmost occurrence of Ichiki pottery.

MORIZONO, NAOTAKA

1963*a* Kagoshima-ken Kumade-gun Issō Iseki [The Issō site of Kumade Township, Kagoshima Prefecture]. *Nihon Kōkogaku Nempō* 10 (1957) 95–96.

The results of a four-day excavation of the Issō site, to the east side of Issō Village on the north shore of Yaku Island. From this site, the Issō pottery type (Latest Jōmon) has been identified. The pottery is usually black, with slanting notches on the rim, below which an incision is made. Ichiki pottery and chipped and polished adzes were also found.

1963*b* Kagoshima-ken Kumade-gun Hirota iseki [The Hirota site, Kumade Township, Kagoshima Prefecture]. *Nihon Kōkogaku Nempō* 10 (1957): 106.

A brief summary of the Hirota burials.

1964 Kagoshima-ken Nishinoomote Moto-jō iseki [The Moto-jō site, Kumade Township, Kagoshima Prefecture]. *Nihon Kōkogaku Nempō* 12 (1959): 94.

The Moto-jō site, within the town of Nishinoomote on the west coast of Tanegashima, which is badly disturbed, contains a wide range of artifacts from the modern period as well as prehistoric material that extends back to the Early Jōmon period.

NIINO, HIROSHI

1964 Ryukyu-retto to Kuroshio [The Ryukyus and the Black Current]. *Minami to Kita* 31 (December 1964): 40–45.

A useful summary article on the Black or Japan Current that has had a pronounced effect upon the culture history and ecology of the Ryukyus and southern Japan.

ŌKAWA, KIYOSHI

1962 Ryukyu koga chōsa shoho [Report of the investigation of old roof tiles from the Ryukyus]. *Bunkazai Yōran* 1962: 103–121.

On the basis of tiles excavated from Urasoe, a historic castle site of Okinawa, Ōkawa argues that the earliest tiles were made in the Ryukyus by Koreans in A.D. 1273, rather than in 1153, the latter date being possible only if the Japanese rather than the indigenous Okinawan system of counting reigns is used.

PALMGREN, N., WALTER STEGER, and NILS SUNDIUS

1963 *Sung sherds.* Stockholm: Almquist and Wiksell (in English).

A magnificent volume based on Palmgren's prewar researches on celadon kilns on Chekiang, the area from which most of the celadon found in the Ryukyus has come; contains technical studies of these sherds by Steger and Sundius.

RYUKYU SEIFU BUNKAZAI HOGO IINKAI

n.d. *Okinawa no Bunkazai* [The cultural treasures of the Ryukyus].

A catalogue of the cultural properties of the Ryukyus, almost identical to the larger English edition, *Cultural Assets of the Ryukyus*. It provides a brief description, location, and photograph for each item. The system of designating valuable objects and affording them some sort of government protection is based along Japanese lines. Includes natural treasures—rare vegetation and conservation areas as well as artifacts.

1962 *Shitei Bunkazai Shashin Shu* [A photographic album of cultural properties].

The best catalogue of the Ryukyus Cultural Assets Protection Commission, in both Japanese and English, with natural as well as cultural properties enumerated.

1965 *Ryukyu Bunkazai Chosa Hōkokusho* [Report of the investigation of Ryukyu cultural objects], pp. 1–55. Naha: Ryukyu Seifu.

The first part of the first number of this series contains the report of the first season's excavation at the site of Katsuren, an important castle occupied in the Early Historic period (ca. A.D. 1300–1500), by Hiroe Takamiya. The site is situated on a peak of limestone about 300 ft. above the north shore of Nakagusuku Bay. Abundant artifacts, some of them indicating extensive trade with China, have been found. Three kinds of locally made pottery, iron arrowheads, knife blades and scrap, coins, roof tiles, shell pendants, jade beads, bone artifacts for weaving, stone amulets, axes, wedges, and porcelain and stoneware bowls were recovered. Chekiang celadon bowls, dishes, tea bowls, flower vases (or wine bottles), of the green, gray, and white varieties of celadon, blue and white sherds, and Temmoku sherds have been found. The excavations will continue for a number of years. Settlement remains of the castle and outlying structures have been located.

RYUKYU SEIFU HAKUBUTSUKAN

1964 *Ryukyu Hakubutsukan* [The Ryukyu Museum]. Naha.

A handsomely produced catalogue of art objects from the Ryukyu Museum, prepared by Mr. Seitoku Oshiro, that represents a distinct break from the format of *Bunkazai Yōran* or most other government publications. Important paintings, ceramics, and sculpture are included.

SAKAMAKI, SHUNZO

1963 *Ryukyu: A bibliographical guide to Okinawan studies*. Honolulu: University of Hawaii Press (in English).

A comprehensive, annotated guide to Ryukyuan, Japanese, Chinese, and Korean sources on Ryukyu history, culture, and language. Indispensable as a research tool.

1964 Ryukyu and Southeast Asia, *The Journal of Asian Studies* XXIII, 3: 383–389 (in English).

A summary article concerning trade during the Chuzan kingdom of Okinawa, based on the document, the *Li-tai-pao-an* or *Rekidai Hōan*.

1965 *Ryukyuan research resources at the University of Hawaii*, Ryukyuan Research Center Research Series, No. 1. Honolulu: Ryukyuan Research Center, University of Hawaii.

A list of library holdings concerning the Ryukyus on the campus of the University of Hawaii, comprising about 4,000 titles. An invaluable bibliography and guide to the most comprehensive collection of Ryukyuan materials anywhere. Includes books, periodicals, articles, and manuscripts in English, Japanese, Korean, and Chinese. Also included is the impressive list of microfilmed historical materials collected by Mitsugu Sakihara from the Ryukyus in 1962 and 1963 for the University of Hawaii.

SMITH, ALLAN, ed.

1964 *Ryukyuan Culture and Society*. Honolulu: University of Hawaii Press (in English).

Several papers, by Meighan, Takamiya, Kaneko, and Kokubu are included in this collection from the Tenth Pacific Science Congress.

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TAKIGUCHI, HIROSHI

1960 *Yaeyama*.

Micronesia: 1960–1964

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PETER S. CHAPMAN*

THE last Micronesian report was from Allan H. Smith, who covered news through December 1961 (*AP* V, 1:79–87). This and the next report (*AP* XIII) are divided broadly 1960–1964 and 1965–1969, with attention focused on those papers that "explicitly present, even peripherally, findings or views on Micronesian societies of earlier time-levels," as Smith defined his mandate (*AP* II, 1: 69). Subsequent reports will be submitted annually in which greater attention will be paid to relatively fewer papers than the number it is necessary to cover in this and the following report.

For the reader's speedier reference, I am making a slight departure from the usual report form. News and bibliographical materials will be discussed under three headings with subheads:

I. Sources and News
  A. Maps and Field Guides
  B. Journals
  C. Bibliographies
  D. Information and Current Research
II. Areal Topics
  A. General
  B. Intra-areal
  C. Inter-areal
  D. Programs
  E. Dating
III. Island Groups
  A. West Carolines
  B. Marianas
  C. East Carolines
  D. Marshalls
  E. Gilberts

The discussion will relate by parenthetical author and date to a bibliography for each part, I, II, or III.

Let me extend a cordial invitation to all concerned with the culture history of Micronesia to communicate your plans, publications, and thoughts on current developments. A brief form is being prepared for a limited mailing to extract this information as painlessly as possible for future reports, but any earlier communications will be most appreciated.

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I. SOURCES AND NEWS

I.A. *Maps and Field Guides*

Trust Territory maps (excluding the Gilberts) originally compiled by E.H. Bryan, Jr., in 1946 for the U.S. Commercial Company were again issued by the U.S. Department of Interior in an edition that is now out of print (Bryan 1961). In the postwar years, there is as yet no other public series, although the U.S. Army Map Service has maps of the islands that may be made available for research studies on formal request. A ninth edition of a familiar yearbook (Robson 1963) has been issued that covers the physical, economic, and political aspects of the islands.

I.B. *Journals*

Two journals were begun since the last report, but their intent has been noted elsewhere: *Oceanic Linguistics*, 1962 ff. (*AP* VI, 1–2: 5) and *Micronesica*, 1964 ff. (*AP* VII, 1–2: 4). The latter has strong biological and anthropological interests, and now that its publication schedule is settled, it should provide a further outlet for regional studies in these spheres. The publication *New World Antiquity*, 1954 ff., indexed in the UNESCO series noted below, should be approached with some caution. In two unsigned resumés on archaeology in Micronesia (1960, 7: 23; 1961, 8, 6: 68–70, 75–76), the case is set that owing to Japanese and United States political control, no interest has been shown or allowed in the prehistory of Micronesia since 1911, or (in another place) in the last seventy years, presumably since F.W. Christian.

I.C. *Bibliographies*

A good source for manuscript material at the University of Hawaii is the bibliography by Cammack and Saito (1962) that, in an effort to supplement the 1951 classic by C.R.H. Taylor, deals primarily with social sciences, education, and language materials published after 1948. Items on Micronesia appear as numbers 769–1143. Two short lists expand the record of Japanese research (Japanese Society of Ethnology 1961, Japan Culture Institute 1961), and the Pacific Scientific Information Center (PASIC) has compiled the published results of the Coordinated Investigation of Micronesian Anthropology and of the Scientific Investigations in Micronesia (PASIC 1963*a*, 1964*b*).

Four other sources may be considered with regard to their timeliness. By far the most useful are the quarterly compilations issued by the Library of the Royal Anthropological Institute (RAIL 1963 ff.) that has world coverage geographically and topically divided and the yearly oceanic bibliography of the Société des Océanistes (1945 ff.). The RAIL schedule certainly outdistances that of UNESCO (1958 ff.) and the Council for Old World Archaeology (1958 ff.). Reports of research in progress in the latter are valuable, but publication dates of both usually follow by two or more years those of the most recent references included.

I.D. *Information and Current Research*

The *Pacific Island Program Bulletin* issued by the University of California at Los Angeles (1964 ff.) serves to report on the work and research interests of both students and faculty there and appears two to four times a year. *Man in the Pacific* (PASIC 1963 ff. *b*) has a format already noted (*AP* VII, 1–2: 4). PASIC has also issued (1963*c*, 1964*a*) a list of Pacific botanists and a revised list of Pacific anthropologists. Changes and additions to the latter are found in subsequent issues of *Man in the Pacific.* These materials are but a part of the production of PASIC, which in return for collecting and disseminating such data asks that reprints and notices of individual plans be voluntarily contributed and initiated.

II. AREAL TOPICS

II.A. *General*

Two histories of Guam have appeared. The history by Carano and Sanchez (1964) is more rewarding than the one by Beardsley (1964) that provides no index and is more of a capsuled résumé than the former; Carano and Sanchez present a brief discussion of the prehistory of Guam drawn from a sufficient variety of sources. The series of essays by F.M. Spoehr (1963) provides an historical footnote to the commercial and scientific activities of the Germans in Micronesia at the end of the nineteenth century that concentrates on the House of Godeffroy and the career of J.S. Kubary.

Four popular travel journals provide a rewarding view of Micronesian personalities and their problems during the time-span of this report. The early tour by the *New York Times*'s Trumbull (1959) throughout the area is complemented by the experiences of an associate justice of the High Court of the U.S. Trust Territory and his wife (Toomin 1963) and by the more limited adventures of the novelist Ullman (1963). In all three works, a few pages are devoted to personal visits to Nan Matol. The superficial introduction by Borden (1961: 30–79, 152–160) covers the whole area, but in a rather breathless way, particularly the sun-temples, forts, and castles of Nan Matol (1961: 70–71), a south sea kingdom which "flourished more than a thousand years ago."

II.B. *Intra-Areal*

For the record, let me cite my thesis (Chapman 1964), already mentioned in *AP* VIII, 1: 8 [and soon to be published by Social Science Research Institute as a number in the Asian and Pacific Archaeology Series], which these Micronesia reports are intended to supplement. While revision towards publication continues, copies are available as noted. Lessa (1962) has made a valuable start in the immense task of collecting the sources for early descriptions of Micronesian culture and analyzing them for content, accuracy, and usefulness in anthropological studies. Exploration, missionary, and commercial records and accounts should be tackled on an even broader scale before legitimate accounts of the history and effects of contact can be written.

Spurred by the meetings at the Tenth Pacific Science Congress and by the *Atoll Research Bulletins,* researchers have shown an increasing interest in the problems of understanding man in his environment. The implications for culture history may be seen in the discussions of atoll subsistence and demography; in the effects of, and upon, social structure encountered in isolated, small communities; and in the agricultural and material-culture adaptations necessitated by varying ecological systems. A broad guide to such environments was drawn up by Wiens (1962), and while human ecology was finally left to a concluding chapter, man's part in the ecology crops up throughout the book that is devoted to a "dissection of the landscape and the physical and biological complex of the coral atoll . . . [towards] an understanding of the stage on which man operates and of his prospects. . ." (Wiens 1962: xx-xxi).

Barrau's fine survey of subsistence plants and agricultural practices (1961) and the lists of vernacular names for flora and fauna (Goo and Banner 1963) are valuable references for fieldwork. Mason's views (1962) on the values of an interdisciplinary approach to anthropology and geography are well-illustrated in the interesting conclusions by Alkire (1960) who found that the choice of crops and the distribution of the population were of more significance to ecological adjustment than were the natural conditions of high and low islands. Wiens (1963) pointed out the powerful determinants of the natural environment operating on coral atolls, particularly in rainfall differential that affects the presence and success of human and other biological populations. This point is raised also by Goodenough (1963*a*) in his description of the changes on Onotoa, Gilbert Islands, that resulted from an opportunity to import wood for sailing canoes: "The fact that the Gilbertese responded . . . in the way they did shows that equilibrium of the precolonial economic and social system was maintained not by features internal to the culture and inherent in its organization, but by a limitation of the natural environment. . . As soon as the environmental limitation could be circumvented, existing values led to changes in practice and to the series of economic and social adjustments outlined."

Reasons for the abandonment of atolls in prehistoric times may be implied from the evidence presented by Cooper (1964: 416–417) of protein deficiency owing to fish toxicity that contributed to infant mortality and led to eventual evacuation to more hospitable climes.

McKnight (1964) provided a popular account of the variety and background of handicrafts currently for sale in the Trust Territory and a short account of the contributions of Hijikata in this regard while he was in Palau (1964: 38–39).

II.C. *Inter-Areal*

Awkward as the phrase may be, "peopling" connotes more nearly the indefinite and fragmentary nature of the settlement of Micronesia and the Pacific than does the use of "origin" and "migration." Certainly, the indications of this movement appear in a fragmentary way, as we may note in examining a host of papers covering linguistics, blood groups, agriculture and botany, material culture, and folklore.

Capell (1962: 379, 384–385) assigns the Palauan and Chamorro languages to a northern group of IN (Indonesian) and notes that most writers regard Nauru as MC (Micronesian) as well as Yap ("rather doubtfully"). Capell lists the following as "true MC languages": Tobi, Sonsorol, Ulithi, Truk, Ponape, Kusaie, Marshalls, and Gilberts. He further analyzes in this survey the various theories of Austronesian movements (1962: 393–396). Points raised in the comments on this report were discussed later by Cowan et al. (1965), wherein Hamp makes the only strong allusion to an MC problem: ". . . regarding the ceremonial languages, the cultures either had two separate languages basically, or extensive borrowing has marked off one well-defined style from everyday language" (Cowan et al. 1965: 221).

It is Dyen, however, who has provided the largest corpus for discussion. Assigning a homeland of a linguistic family to an area in which the genetically most diverse members of that family are to be found, his studies of over half of the AN (Austronesian) languages spoken in Oceania led to a homeland around New Britain, the facing coast of New Guinea, and the archipelagoes to the southeast (1962: 38, 44), from whence a spread began before ("possibly well before") 2500 B.C. (1962: 46). His data were privately published (Dyen 1963) and were brought to a wider audience by Murdock's (1964) analysis, which can now be followed with reference to the data in a more available form (Dyen 1965).

Ponapean, Trukese, Wolean, Marshallese, and Kusaiean are placed in the subfamily Carolinian of the Austronesian linkage. While Yap and Nauru are placed with this linkage, Palauan and Chamorro are separately tied in with the Malayopolynesian linkage (Dyen 1965: 33–35, 39–41). Gilbertese has high percentage sharings with the Carolinian and the Polynesian subfamilies that present an argument for placing the Carolinian subfamily into Heonesian, a part of the Malayopolynesian linkage (Dyen 1965: 46; Murdock 1964: 121).

Dyen's study was initiated under the auspices of the Tri-Institutional Pacific Program, with the hope that ethnologists and archaeologists would turn to fruitful areas of investigation that were implied by the results of his study (Dyen 1965: 14). It is here that our real concern in this report should lie. From this Melanesian homeland, connections are implied between eastern Micronesia and the New Hebrides, and "an east-to-west movement is clearly discernible starting from the Kusaie-Ponape-Marshalls-Gilberts area; the Carolinian languages from Truk to the west stem from the Ponape area" (Dyen 1965: 55). Further suggestions concern "a westward migration of the Carolinian languages through Micronesia and a northwestward migration from western Micronesia to Formosa" (Murdock 1964: 123, citing Dyen 1963: 83–84), while another movement, "probably from Palau and/or Guam, settled North Celebes, and also Borneo, and Southern Mindanao" (Dyen 1965: 54). Concentrations of culture-history research with Micronesian implications are thus indicated for the New Hebrides, Gilberts, Kusaie area; for Palauan influences in the Philippines, Borneo, and North Celebes; and for Formosa.

Grace (Chang, Solheim, and Grace 1964: 367–368) concurs that "with the exception of Palauan and Chamorro, . . . all of the languages of Micronesia belong to a single group which has its closest relations with languages of the New Hebrides . . . The languages of Yap and Nauru are generally regarded as quite aberrant, but I believe, nevertheless, that they belong to this Micronesian grouping . . . These relations indicate a movement from the New Hebrides to Micronesia . . . which must have taken place by the time of Christ, and probably considerably before. . . The most significant movements after approximately 1500 B.C. probably led to the establishment of Malayo-Polynesian languages in Fiji, Polynesia, (most if not all of) Micronesia, and Madagascar. . . The author believes that those [movements] to Fiji, to Polynesia, and to most of Micronesia originated in the New Hebrides." J.L. Fischer adds the following comments on glottochronological inferences for Truk and Ponape: ". . . The estimated date of split would be around 1080 B.C. It is my impression that these two languages are more closely related to each other than to other major languages in eastern Micronesia: Kusaiean, Marshallese, Gilbertese, and Nauru. A considerable time depth for differentiation of the Micronesian languages is suggested." (Chang, Solheim, and Grace 1964: 388). Goodenough (1963*b*) has offered "evidence to indicate that satisfactory explanations of the double consonants [of Trukese] can be found in terms of vowel loss and analogical extension of the new patterns resulting from such loss . . . [and] need not be regarded as a problem in reconstructing Proto-Malayo-Polynesian." The summary by the

Voegelins (1964) of the views of Dyen, Grace, and Matthews is too short to provide any additional clarification.

The paper by Simmons (1962) was summarized from manuscript in *AP* v, 1: 82. Micronesians from Rongelap in the Marshalls were found (Steinberg et al. 1961) to have a high frequency of Gm^{a}, Gm^{b}, and Gm,^{like} and no Gm^{x}—points shared with Africans tested, but "larger samples and the study of more populations are required before any firm statements concerning the goegraphical and racial distribution of the Gm factors can be made." Corrections to Table 2 in this report appeared later (Steinberg 1966). Incidence of the sex-linked, incompletely dominant trait studied by Kidson and Gajdusek (1962) is high among Thais and Filipinos, very low among Malays and Indonesians, and variable in groups of Melanesians. Test results were also variable in Micronesia: at Angaur, 9 percent; Koror, 8 percent; Ifalik, 6 percent; and Ulithi, 0 percent. They conclude that "the distribution of this trait among Pacific peoples is of considerable anthropological interest, for studies of it may—like blood group studies—provide evidence bearing on population movements and origins in this region" (1962: 61). A related study laudably reports that "ancestral relationships among different aboriginal populations of the Western Pacific are being examined. If the ancestry of these groups can be defined in terms of several common genetic markers, then a comparison of the incidence of amyotrophic lateral sclerosis, Parkinsonism-dementia or other neurological diseases . . . might facilitate the separation of genetic and non-genetic disease-producing factors (Plato, Cruz, and Kurland 1964). A broad examination of the findings of physical anthropology in relation to Micronesian culture history, such as that assayed by Simmons (1962) for Polynesians would be most welcome, but it would seem that broader samplings of traits and populations must first be made.

Barrau (1960; 1962: 71) and Coenen and Barrau (1961) call attention to a wild and seeded variety of breadfruit, the *Artocarpus mariannensis Trécul*, found on Guam and some uninhabited islands in Palau. Its characteristic reddish hairiness at the veination of the leaf is found in a number of cultivated varieties throughout Micronesia, suggesting hybridization through man's introduction of the wild variety from west to east. The widest varietal range of breadfruit (over 50 varieties are locally recognized) occurs in Truk and Ponape. Fosberg's broader and more detailed examination (1960) points out that introgressive hybridization, the gradual diffusion of genes from one population to another, can account for the pattern of variation exhibited by the material from Micronesia, particularly the great number of varieties from the eastern area: this pattern can be seen as "a somewhat random recombination of characters of the two species, *Artocarpus altilis* and *A. mariannensis*" (1960: 110). The forms intermediate between the two are mainly distinguished by degrees of leaf-cutting and amounts of leaf-pubescence. Within these forms are "varieties" recognized by the local people, differing most significantly in their fruits. Man is responsible for the transport of *A. mariannensis, A. altilis,* and their horticultural varieties across the Pacific from west to east, and Fosberg concludes that the "absence [of *A. mariannensis*], and absence of hybrids involving its characters, in Polynesia may be taken as evidence of infrequency or lack of contacts between Micronesia and Polynesia. These facts likewise fail to support the idea that Micronesia was on the eastward migration route of the Polynesians" (1960: 111).

An association is suggested by Yawata (1963) between the Marianas and areas of the Philippines, Celebes, and Java on the basis of rice cultivation, found in irrigated and dry fields by the first European voyagers to the Marianas. Yawata cites similarities in methods of cultivation, types of rice, and in means of storage.

With general implications for Micronesia, Chang (Chang, Solheim, and Grace 1964: 373, 375) lists some of the characteristics of his Southeastern Tradition, close to and "susceptible to northern assimilation, which he views as the general homeland in China" for the early segments of the Pacific inhabitants." Solheim (1963) gives a brief list of traits connected with pottery, adzes, and fishing gear which link Proto-Jōmon and Early Jōmon times in Japan to the Marianas, the western Carolines, and further areas of Melanesia and Eastern Oceania. The theme is expanded to make the following points (Chang, Solheim, and Grace 1964: 401–403): a Middle Jōmon source is suggested for the lenticular adze, coiling and ring-building pottery techniques, and circumpolar fishing gear that found their way over the routes just mentioned; Marianas redware dates too early to tie in with similar Philippine red-slipped ware with impressed circles, but suits Japan in Middle Jōmon times both in material and in point of time; the pottery and the lenticular adze probably reached Melanesia from Micronesia around 1000 B.C. or earlier, and one would assume that the Admiralties and northern New Guinea would have received the first penetrations of this pottery from the north. The view is also offered (1964: 382, 384) that while Palau's coiling techniques are related to eastern Indonesia and other high-percentage coiling areas, Yap's later paddle and anvil pottery (following original influences from Japan) came in from the Visayan Islands in the Philippines with descendents of Sa-huỳnh-Kalanay pottery makers, around A.D. 500–1000. Whether impressed circles on Philippine and Jōmon red-slipped ware were actually lime-filled as was the pottery found in the Marianas is a most intriguing question for future solution.

The argument that shell adzes were made in the Pacific as an adaptation to the inavailability of stone was shaken a bit by the excavation of a burial of the Early Neolithic period reported from Duyong Cave, Palawan, Philippines by Fox (1963:6, 10–13). A charcoal date of 4360± 250 B.P. was established for this burial. Four adzes of *Tridacna gigas* hinge were associated, parallel with this burial. "Neolithic man in the Philippines also made shell adzes and knowledge of the use of this medium could have been carried out into the Pacific World." Evangelista's Philippines regional report in *AP* VII, 1–2: 54 and Plate I*a* documents the find.

In an examination of literature on megaliths, Fleming (1963) offers the suggestion of a route from China to North Luzon to Palau to Melanesia to New Guinea; the New Guinea area received similar influences from Indonesia and China directly. Megaliths are seen as remains of a series of migrations from China that carried the cult of "earth altar and ancestral fertility."

Lessa's (1961) compilation and analysis of folktales from Ulithi Atoll was summarized by Smith in *AP* IV (1–2: 95) prior to its publication, and we offer here only the correct reference to it.

II.D. *Programs*

Osborne (1962) urged that attention be paid to Philippines-Micronesian relationships in the planning of future research, that Malaysian data be better related to helping solve the problems of western Micronesian affiliations—particularly in the area of the Moluccas and Celebes—and indicated that in his view, any efforts towards Truk, Ponape, and Kusaie should be secondary to these requirements. Alexander Spoehr's (1966) overview of developments and new avenues of approach to the study of Micronesia extends a few specific suggestions (1966: 631–633): that migrations into Micronesia be worked out, that carefully prepared reports of stratigraphically excavated sites be tackled, and that clarification of marine adaptations be worked on, particularly the influences from Southeast Asia and neolithic Japan.

A paper directed to Central American problems of interpretation (Kaplan 1963) provides reference to sites on Ponape and in the Marianas. Kaplan stresses the possibility that small groups mobilized at the sociopolitical level of chiefdoms might have been capable over time of constructing most of the larger monumental structures. His point implies strong support for Spoehr's call for well-chosen, stratigraphically excavated sites: wherever substantial evidence "clearly indicates that the monumental structures were built up in discrete stages over what seems to have been a long period of time, there is no need to assume that great hordes . . . were involved, at any given time, in their construction. . . Unless we can be more precise in our estimates of how these man-hours were distributed over time, any attempts to derive the size or character of political units from the size or number of the structures in question is highly dubious" (Kaplan 1963: 401).

A number of tasks may be set to future archaeological work in Micronesia, as implied by the questions raised in the papers outlined above: relationships of Middle Jōmon circle-impressed, red-slipped ware with Marianas and Philippines (were any lime-filled impressions found other than at the Marianas?); stratigraphic proofs of the passage of coil and ring-built pottery and the lenticular adze from the north [=Japan?] via western Micronesia before 1000 B.C.; relationships of these and other materials between western Micronesia and the Admiralties—North Guinea area; courses by which circumpolar fishing methods entered and passed through Micronesia on to Polynesia; archaeological ties between eastern Micronesia and the Banks—New Hebrides area in support of linguistic evidence; early clarification of relationships of pottery found on Ponape by the Südsee Expedition (1908–1910) and the Japanese, and affirmation of pottery in archaeological contexts in eastern Micronesia.

II.E. *Dating*

Shutler (1962) has discussed in this journal seven dates from Yap and two from the Marianas from the point of view of consistency and methodology. With regard to Yap, however, the analysis by Smith in his last report (*AP* v, 1: 82–83) is far more detailed and should be placed as a sort of errata sheet in all copies of the Giffords' Yap report. The world survey by Jelinek (1962) is sufficiently described in the bibliography.

III. ISLAND GROUPS

III.A. *West Carolines*

Materials included in CIMA [Coordinated Investigation of Micronesian Anthropology] report number 20 have appeared in abbreviated form (Barnett 1960) written for a different audience. Brief mention is made of Palauan money (1960:37–38) and shrines (1960: 79–80).

McKnight (1960) has examined the place of breadfruit in Palauan culture. Legends indicate some antiquity for the plant, though it was apparently never a primary staple. Its greater importance was recognized, however, on low islands and islands to the south and southwest. A single, seeded variety, among the six recognized in Palau, is identified as *Artocarpus altilis* var. *seminifera* Hort., following Barrau: no mention is made of *A. mariannensis* (see II.C.). This variety, *meduueliou* locally, is not common on the central high islands, but occurs in great number throughout the limestone islands and on Kayangel, Peleliu, and Angaur. Furthermore, it is a traditional crop on Sonsorol, Pulo Ana, Merir, and Tobi and is said to be the most ancient of the varieties found in the Palaus. It is specifically pointed out as being more tolerant of salt (halophytic) than the other varieties. A specialty of Peleliu is a recipe for the preservation of breadfruit that involves communal labor; it is the only recipe known locally which allows preservation for a full year. The recipe, *telib,* was said to be applied to two other fruits (*Ficus* sp.) in earlier, presently-abandoned villages on the limestone islands between Koror and Peleliu. Comparable and expanded data on the eastward movement of seeded, halophytic varieties of breadfruit would be valuable.

McKnight (1964) also reported, in another vein, on rock paintings that seem to be more Melanesian than Palauan. The paintings showed no immediate correspondence to paintings commonly found on community houses, but they might have been a characteristic art style brought in from Melanesia and the Philippines by clans ancestral to those now in Palau.

Changes in Palauan ceremonial custom (*Micronesian Reporter* 1963) have resulted from steps taken by the Japanese and the present administration to reduce the amounts of food produced for feasts, thereby reducing the size of reciprocal gifts of money by the man's clan to his wife's clan. Four ceremonies for funerals and births that have been affected are described.

Pottery manufacture and the appearance of surface sherds were described by Hijikata (1960) with reference to his 1929 diaries. Spatula, shell, and palm-leaf impressions were noted on vessels with incurving rims, no basal supports, no handles, and often with holes at the rim for hanging. The collection was destroyed accidentally after shipment to Japan. Osborne's 1962 paper in this journal (see II.D.) also contains a brief résumé of his archaeological survey, pottery types, and suggested "historical column" of periods.

The comments on Palauan money by R.W. and M. Force (1963) constitute a slightly condensed version of the paper in *JPS* 68, 1, 40–44, by the senior author only. This was summarized by Smith in *AP* IV, 1–2: 96–97.

Six articles by Inez de Beauclair bear some examination, as a number of topics are repeatedly touched upon. Her attention has focused on beads and crescentic tokens of value on Yap and Palau (1963*a*; 1963*d*); on the relationship of Yap with Palau (1963*a*: 1, 3–4; 1963*b*: 150–151), and with the Marianas (1962: 76; 1963*a*: 1; 1963*b*: 152); on aspects of a megalithic culture at Yap (1962: 75; 1963*c*: 71); on the distribution of villages and stone structures on Yap (1962: 73); on magicians' practices and their forms of burial (1963*c*: 76); and, finally among topics of time-depth relevance, the influence of Yap over islands to the north and east (1962: 76; 1963*c*: 70–73, 77, 79, 81; 1963*e*).

Defngin (1961) recounts the traditional tale of the first piece of stone money *(rai)* from Palau, shaped like a whale, and emphasizes the value placed on pieces from Babelthuap and from Guam over those pieces mined locally in Tomil, Yapa. He further describes (1962) exchanges of money and valuables at weddings and dance contests performed by families and by communities. Also dealing with Yap, Gilmar (1963) discusses seven types of watercraft, of which four are no longer in existence, and the effects of road development on the villages of Yap.

III.B. *Marianas*

A popular but well-grounded introduction to the questions of prehistory raised in the Marianas (Beaty 1962) mentions some of the more important work done by Hornbostel, Thompson, and Spoehr. A test trench excavated at Taga, Tinian, to over 10 ft. by Pellett (Pellett and Spoehr 1961) yielded corroborative evidence for Spoehr's chronology of Marianas Red (early) and Marianas Plain (late) pottery, with an additional 26 sherds of impressed, lime-filled ware. The decoration had been applied to Marianas Red material, and the hope is expressed that other instances of this ware (most likely from the Philippines) will help clarify relationships of neighboring island groups.

Yawata's detailed study of Hornbostel's records at Bishop Museum (1961) is adequately summarized in his article that appeared in *AP* v (Yawata 1962). The results were first presented at the Tenth Pacific Science Congress (*AP* v, 1: 82). Fischer's analysis of the retention rate of Chamorro (1961) has already been summarized in *AP,* as noted in the bibliography. In a similar vein, Solenberger (1962) explored the social significance of language choice to group solidarity and status identity, finding the order of preference to be Chamorro, English, Central Caroline dialects, Japanese, German, and Philippine languages.

III.C. *East Carolines*

Having checked L.H. Gulick's missionary letters, Fischer (1964) finds evidence, contrary to the opinion of Hambruch, that Nan Matol was abandoned before mission influence, not owing to it. Political fission following the overthrow of the Sau Deleurs and depopulation following European contact accounted for the abandonment of the area for all except a limited number of ceremonies, which were then gradually put under missionary pressure. He sees the center as erected over time under a unified political control, serving perhaps one thousand or more who received tribute from the rest of Ponape's population of 20–35,000 (1964: 52). A brief note (*Micronesian Reporter* 1963) mentions the research and excavation done by Evans, Meggers, and Riesenberg at Nan Matol in January–March 1963. The team reported tentative findings at the American Anthropological Association meetings that autumn, but no publication has as yet resulted. Two popular and rather uneven summaries of the history and appearance of Nan Matol (Brandt 1962, De Camp 1964) have been offered. Finally, McKnight (1964) has written an interesting account of site maintenance at Nan Matol, supported by the Ponape legislature, a partial result of which is the fashioning of shell-disc crowns and necklaces from leads provided only by the surface finds themselves.

CIMA's report 13 on the material culture of Truk (LeBar 1964*b*) has finally come into print with commendably broad coverage of its topic and some excellent illustrations. Portions on house and canoe construction were presented earlier (LeBar 1963). Pottery is unknown on Truk, but test excavations on the appropriate (though unnamed) islands might be profitable: a red paint is made by "mixing a particular kind of reddish clay, found on only a few of the islands" (1964*b*: 1, 5, 49; 1963: 62). Basalt is reported used for pecking and polishing, but only shell for adzes: a suspended, free-swinging basalt axe to fell trees is described, however (1964*b*: 7, 9, 11). LeBar (1964*a*) also presents the interesting results of following Malinowski's dictum to collect statistical documentation by concrete evidence: over 50 types of goods, totaling 2600 for the 230 members of the Romonum community in 53 residential units, were recorded in 1947–1948 by quantity owned, place of origin, and name, age, and sex of maker if locally obtained. Changes over time are then examined, relative to materials, standard of living, and specializations.

Interested in "the discovery of those sociocultural processes which seem to have significance in the strikingly different reactions of Trukese and Ponapeans to German colonial policies," Clifton (1964: 91) looks to three sets of antecedent conditions to account for the differential reaction (obedience on Truk, rebellion on Ponape): variables of social structure, cultural character, and acculturative contacts with aliens. On Truk, in part, Clifton suggests that the power of native leadership was limited by small political units and by the power of the kinship unit, coupled with basic dependency and security orientations of Trukese character. Alternatively, the Ponapeans placed a value on rivalrous opposition and had a tradition of self-determination, achievement motivation, and equalitarian distribution of traditional rewards.

Through an examination of the mnemonics associated with place names of Nukuoro Atoll and the surrounding islets, Carroll (1964) uncovered considerable evidence that "some of these changes represent accretions to the atoll in the form of whole islands built by the hand of man. Since atoll-building is not generally thought of as comprising part of the technical resources available to the inhabitants of insular Oceania, this evidence is thought to be significant." Presently unexploited, the land ownership of other islets reflects the possibility that they "provided in certain seasons a more convenient base from which to collect and dry the fish which were eaten at other times of the year." The presence of man-made islets, the techniques described in setting them up, the temporary nature of the exploitation made of certain of them, the establishment of land ownership based on who first made the land productive, and the implications of the study of place names to distinguish artificial from natural islets all have significance for the future of atoll archaeology.

III.D. *Marshalls*

Bender's dissertation (1963) includes chapters on phonology, grammar, dialects, and a glossary and gazetteer, "to present as completely and correctly as possible the names the Marshallese people have in their oral tradition for the places in their habitat they deem worthy of naming, and to indicate the relation of these names to other elements and the systems and patterns of their language, and secondarily, to their culture" (1963: vii). The work has since been under revision, but publication remains indefinite.

Mackenzie (1960) lists 19 recognized and named sub-varieties of *Artocarpus altilis* var. *apyrena,* a seedless breadfruit, and 4 of *A. altilis,* var. *seminifera,* the seeded breadfruit already mentioned in connection with Mcknight's work in Palau. The seeded subvariety *majwaan* is "grown and found on almost all the atolls in the Marshalls . . . [and] is also the most resistant to brackish water and the hardiest grower" (1960: 3). Most of the varieties eaten are seedless, and this brief paper concentrates on methods of propagation, harvest, and preservation. Stone (1963) suggests that selection of pandanus was initially for thatch and only later for food: "The use of the fruit pulp for food is almost entirely restricted to the Marshall, Gilbert, and certain Caroline islands . . . and perhaps formerly the Tuamotus, [while] *Pandanus* cultivars selected for leaf-characters occur not only in this area but in a much wider area farther to the west, east, and south" (1963: 61). An indication of the cultural preoccupation over time with *Pandanus* is the size of the vocabulary referring to it: 123 varieties are named in the Marshalls, and around 200 in the Gilberts, word groups with definite referents useful in tracing language differentiation and paths of movement. Propagation, nutritive values, and other uses are also discussed, and an appendix gives a cultivar index and distribution of names by atoll. The paper has been revised from that presented at the Tenth Pacific Science Congress, noted in *AP* V, 1: 81.

Marshallese wave charts, those serving as science models and others meant as piloting instructions, are explained by Davenport (1960, 1964) and De Brum (1961, 1962). De Brum describes in practical terms, with the aid of ten illustrative diagrams, the wave action that one finds at increasing distances from land, as well as the wave action that may be noticed as one approaches other islands. I have not examined the article by Davis (1964).

III.E. *Gilberts*

Maude's landmark study (1963) of the Gilbertese *boti,* the sitting place of the clan in the meeting house, is by now a well-known document, already summarized prior to publication in *AP* v, 1: 81.

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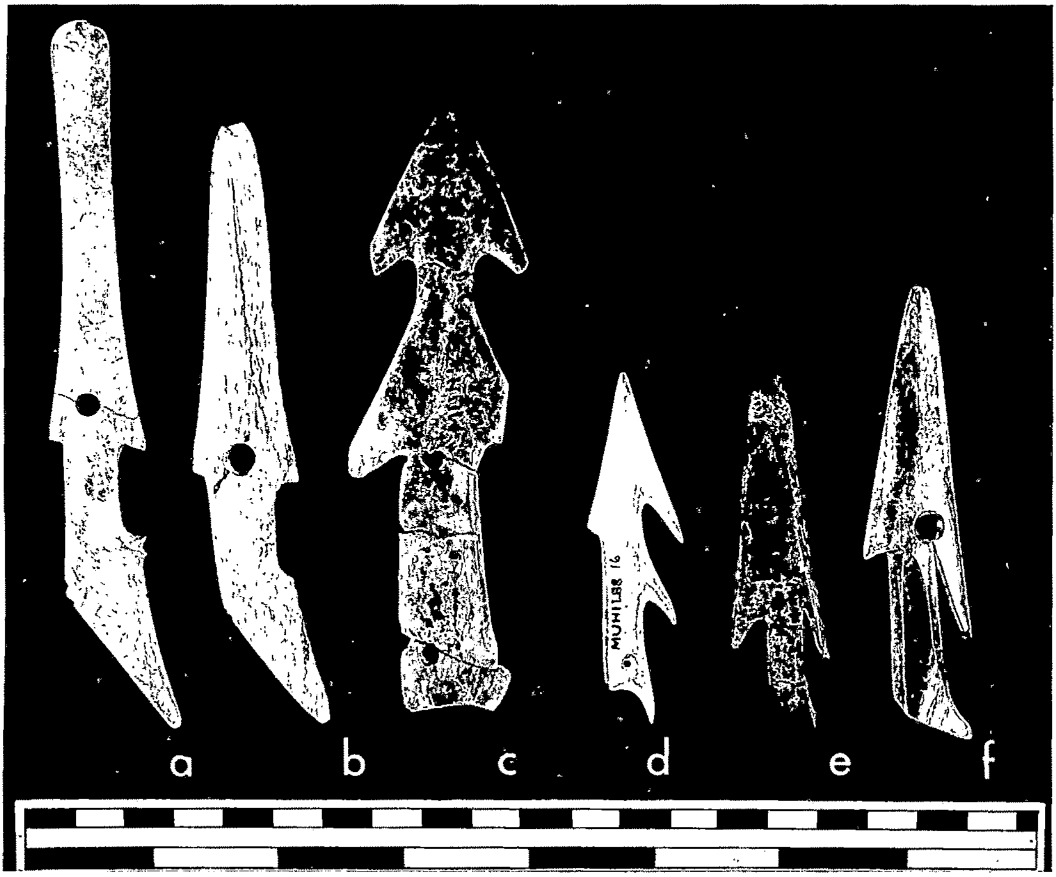

Plate I Harpoon heads from Hane Dune site (MUH1) and Manihina site (MUH2), Uahuka, Marquesas Islands: *a*, bone, MUH1080–19; *b*, bone, MUH2–29; *c*, bone, MUH1L92–14; *d*, pearl shell MUH1L88–16; *e*, pearl shell MUH1L92–64; *f*, pearl shell, MUH 1L90–67.

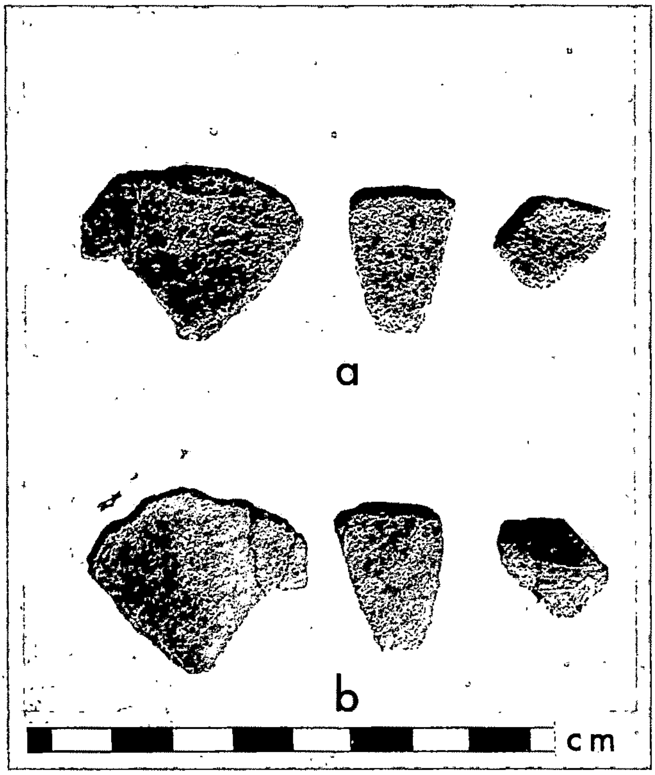

Plate II Undecorated potsherds from Location M, Haʻatuatu site, Nukuhiva, Marquesas Islands: *a,* exterior surfaces; *b,* interior surfaces.

Polynesia: 1965–1966

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YOSIHIKO H. SINOTO*

A SYSTEMATIC archaeological investigation by the Bishop Museum in cooperation with the University of Auckland, the Canterbury Museum, the University of Otago, and the Fiji Museum has been in progress since 1962, with financial support furnished by the National Science Foundation of the United States. The first three-year Program of Polynesian Archaeological Research terminated at the end of February 1965. During this three-year period, investigations were undertaken in the Society Islands, the Marquesas Islands, American and Western Samoa, Rarotonga in the Cook Islands, Pitcairn Island, Kambara Island in the Lau group, and on Tongatapu in the Tonga group. The preliminary reports on the fieldwork have been completed by the investigators and mimeographed for limited distribution. Some of the reports have been published in the *New Zealand Archaeological Association Newsletter* and the *Journal of the Polynesian Society* (see bibliography).

In July 1966, the National Science Foundation granted Bishop Museum an additional two years of continued research. This time, the grant was an interdisciplinary research project for archaeology and linguistics in Polynesian culture history. The University of Hawaii, the University of Auckland, the University of Otago, and Fiji Museum are partcipating in the program. At the special symposium, "Prehistoric Culture in Oceania," of the Eleventh Pacific Science Congress held in Tokyo in August 1966, the most recent results of these investigations were reported and discussed by the investigators. The symposium papers are now in the process of being published by the Bishop Museum. The speakers and their subjects are as follows:

- Melanesia
  - Archaeological Prospects for Melanesia
    - Jack Golson, Australia
  - Archaeological Excavations in Southern Melanesia
    - Richard Shutler, Jr., and Mary Elizabeth Shutler, Hawaii
  - Recent Results from the Sigatoka Archaeological Program
    - Bruce Palmer, Fiji
  - Insular Sand Tempers of Prehistoric Pottery from the Southwest Pacific
    - William R. Dickinson, U.S. Mainland, and Richard Shutler, Jr., Hawaii
- Micronesia
  - Guam Prehistory: A Preliminary Field Report

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Fred M. Reinman, U.S. Mainland
Nukuoro: Archaeology on a Polynesian Outlier in Micronesia
Janet M. Davidson, New Zealand
Japanese Contributions to Micronesian Archaeology and Material Culture
Peter S. Chapman, U.S. Mainland
Polynesia
Archaeological Excavations on Tongatapu
Jens Poulsen, Australia
Samoan Fortifications and Monumental Architecture from Specific Examples
Stuart D. Scott, U.S. Mainland
West Polynesian Prehistory
Roger C. Green, New Zealand
Position of the Marquesas Islands in East Polynesian Prehistory
Yosihiko H. Sinoto, Hawaii
Archaeology of the Cook Islands
Roger Duff, New Zealand
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Thor Heyerdahl, Norway
Research in New Zealand Prehistory since 1956
Leslie M. Groube, New Zealand
East Polynesian Relationships as Revealed through Adzes
Kenneth P. Emory, Hawaii
Summary
Problems of Oceanic Archaeology
Alexander Spoehr, U.S. Mainland

Bishop Museum also received a grant from the National Science Foundation in June 1964 for "Archaeological Investigations in the Hawaiian Islands" for a period of two and one-half years. During 1965 and 1966, several surveys were made on the island of Hawaii, and an extensive site survey has been started in the Kahikinui area of the island of Maui.

FIELDWORK

Marquesas Islands

I carried out the third consecutive field trip by the Bishop Museum to the Marquesas Islands assisted by Marimari Kellum between August and December 1965. The first part of the fieldwork was spent prospecting sites on Tahuata and Hivaoa Islands in the southern group. Although small, 2 promising shelter sites were found on the northern coast of Hivaoa and will be excavated on the next field trip in the fall of 1967. The major part of the fieldwork was undertaken at Hane Dune site, Uahuka Island, and was a continuation of the excavation begun in 1964 (Sinoto and Kellum 1965; Sinoto 1966). Expansion of the excavation in areas A and B yielded numerous fishhooks, adzes, fishhook manufacturing tools, whale-tooth pendants, harpoon heads (Plate I), tatooing needles, and other artifacts from the well-stratified cultural layers. The results of the excavation gave additional data that strengthened the Hane cultural sequence established by the previous excavations. Stone structures of inland Hane Valley were mapped and surveyed for the purpose of reconstructing their sequence and comparing the results with the coastal sequence. Test pits in the Hatuana site, 6 km west of Hane, produced more than 100 fishhooks and files. The hook types suggest that the site was occupied in a period contemporary with the upper levels of the Hane Dune site (about A.D. 1650).

The last three weeks were spent at Ha'atuatua, Nukuhiva Island. The extensive coastal site had been previously excavated by Robert C. Suggs in 1956 and 1957. To clarify the nature of the site and the cultural stratigraphy, test pits were put down in nearly twenty locations. The pits revealed that there were at least 13 independent sites that ranged in their cultural content from Suggs's Settlement to the Classic periods, despite the fact that Suggs's postulated non-occupation of the area to the later periods (Suggs 1962: 63–64). Found on the surface at Location M, 90 m south of Suggs's Location A (Plate II), were 3 small undecorated potsherds.

Society Islands

In March 1966, Kenneth P. Emory, of the Bishop Museum, prospected on Raiatea Island. Some of the adzes collected by the Bishop Museum's local assistant Tihoti Russell indicated a possibility of finding early sites comparable to the Maupiti burial site on coral islets off the east coast of Raiatea. The search for these sites led Emory to discover a small whale-tooth pendant on the tiny islet of Iriru. This pendant was the first discovery in the main island group of the Society Islands and it confirmed existence of the early culture in Raiatea as had been expected. A short trip to excavate on Iriru islet was made by Emory and myself in the end of 1966. A thorough research and test excavations revealed no evidence of burials or occupation sites. They also mapped several marae, council platforms, and house sites at the mouth of Ha'apapara Valley on the southeast coast of Raiatea.

Tuamotu Islands

An archaeological reconnaissance of sites and marae on Rangiroa atoll, western Tuamotu Islands, was made and 3 marae were restored by José Garanger and Ann Lavondès, members of the French Mission, Office of Overseas Scientific and Technical Research, in 1964 and 1965. A detailed report has been published (Garanger and Lavondès 1966).

Western Samoa

Archaeological investigations were most fully undertaken in Western Samoa led by Roger Green, of the University of Auckland. Stuart Scott, of the University of New York at Buffalo, undertook a detailed investigation of a large mound and adjacent structures in the Palauli district on Savaii Island. He excavated fortifications at Luatuanu'u and explored other sites on Upolu. Scott returned to Savaii in the summer of 1966 to complete the survey and the excavations of mounds, including star-shaped mounds. In September 1965, Janet Davidson, of the University of Auckland and Auckland Institute and Museum, continued detailed mapping of village and fortification sites on Upolu. Two areas were surveyed, one at Falesa Village and the other on Western Samoan Trust Estates Corporation land at Marifenua. In October 1966, Davidson returned to continue her survey work, this time of the inland settlement areas of Lalomanu village, Aleipata District. Results of her detailed survey and test excavations in the three areas provided the basic information for the selection of excavation sites in different environmental conditions and laid the basis for extensive studies of Samoan settlement patterns. The excavations were done by Green from December 1966 to March

1967. Between September and December 1966, M. P. Nicholls Hougaard, a New Zealand archaeologist now a resident of Samoa, test-excavated mounds at Vailele and Moamoa.

Tonga Islands

In October 1965, Roger Green and John Terrell spent two weeks on a site survey and mapping the fortifications on Tongatapu.

Ellice Islands

In June 1966, I undertook a brief survey and reconnaissance, assisted by Mrs. Sinoto, on Funafuti atoll. This was the first step in expanding the archaeological survey to the Polynesian outliers. The reconnaissance was difficult, as almost all the islets in Funafuti atoll had been fortified by American troops during World War II, and the consequent destruction of the surface was beyond all expectation. However, the remains of an abandoned village site and burials were found between the ammunition pits at Tegako, north of the main village on Funafuti. Present villagers had no knowledge of the existence of the burials there. We surveyed surface structures of the village and excavated 5 burials: 2 were found in a house foundation and the other 3 were enclosed by coral slabs. Interment of the burials were all extended and without burial offerings.

Hawaiian Islands

During the first quarter of 1966, several surveys were undertaken on the southern part of the island of Hawaii in an area where habitation sites were reported previously by Violet Hansen, a Bishop Museum field associate. Sinoto surveyed and tested sites in the area between Alika and Milolii in South Kona. Roger Green, then visiting professor at the University of Hawaii, assisted by Hansen and William Meinecke, surveyed the coastal area between Waikapuna and South Point and in the Pohue Bay area.

In June 1965, Lloyd Soehren, Bishop Museum assistant archaeologist, conducted excavations of shelter sites at Kahakahakea, Kahuku, island of Hawaii (Sites H65 and H66).

During Thanksgiving and Christmas holidays, William Wallace, a University of Hawaii visiting professor of archaeology from Long Beach University, assisted by Mrs. Wallace, Richard and Mary Elizabeth Shutler, and a group of University of Hawaii students, test-excavated 2 house sites at South Point, Hawaii.

In July 1965, Emory and Soehren completed work on locating and testing 3 small shelter caves in the Keauhou landing area on Hawaii for the Hawaii Volcanoes National Park.

Peter S. Chapman, doctoral candidate in archaeology at Stanford University, began a settlement pattern survey assisted by William Kikuchi, of Bishop Museum staff, in Kahikinui, Maui, under the direction of Kenneth Emory in January 1966. By that summer, 450 stone structures were mapped and surveyed, and 1 house platform and 5 shelter sites were excavated.*

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Melanesia: 1966–1967

Received 15 December 1967

RICHARD SHUTLER, JR.*

PRELIMINARY FIELDWORK REPORTS

Sponsored and supported by the Bernice P. Bishop Museum, Mary Elizabeth Shutler and I returned to the New Hebrides in September 1966 to conduct another year of archaeological research. Our work this trip was concentrated in the northern group. Bibliographic references are arranged by journal title, then alphabetically by author.

Espiritu Santo

A survey was made of the east coast of Santo. Data were recorded on a number of shallow, old village sites that contained pottery. A rock-shelter near Hog Harbor at the northeast tip of Santo was excavated, and pottery was recovered from various depths of the midden, which was 2 ft. deep in places.

Excavations were carried out in several mounds that contained pottery on the offshore island of Aore.

A survey was carried out on Araki Island, just off south Santo, and a number of sites that contained abundant pottery were recorded.

Extensive excavations were carried out at two old village sites on Tangoa Island, off south Santo. The up to 3 ft. of midden produced a large collection of pottery and shell implements, with some stone and bone artifacts.

Mary Elizabeth Shutler made a study of modern pottery-making at the village of Wusi, on the west coast of Santo, and collected pottery from old village sites in the river valleys of the west coast of the island.

Malekula

Numerous sites with large amounts of pottery were recorded on the east coast of Malekula and on some of the offshore islands such as Vao, Atchin, Wala, Rano, and Uripiv. Stone and wood carvings, stone fences, and stone alignments were recorded on these small islands. This information is added to the extensive collections of pottery previously collected from Malekula. A large number of old village sites, caves, and rock-shelters, and some pictographs have now been recorded for Malekula.

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Aoba

Several sites with potsherds were discovered on north and south Aoba.

Ambrym, Paama, and Pentecost

With the cooperation of the British government, it was possible for us to carry out limited surveys on the islands of Ambrym, Paama, and Pentecost. Northeast, southeast, and southwest Ambrym were examined with negative results owing to the very deep volcanic ash that covers the island. The same problem was encountered on Paama. However, we recorded a number of sites on the west coast of Pentecost and collected some pottery and stone axes.

Banks Islands and Torres Islands

On the Melanesian ship Selwyn, I was able to visit all the Banks Islands, and Hiu, northernmost of the Torres. I recorded a number of old village sites throughout the Banks Islands and made a good sample of stone and shell artifacts. On Hiu in the Torres, I recorded pictographs in a large cave at the northern tip of the island as well as an old village site with stone carvings. The Hiu pictographs are reported in the *Pacific Island Monthly* (*PIM*: Langdon 1967).

Southern New Hebrides

Considerable additional surveying was carried out on the south and north coasts of Tanna, and a number of promising sites were recorded. We made short trips to Aneityum and Futuna to check previous work.

The material from our 1963–1964 and 1966–1967 fieldwork is now being described and analyzed. By correlating over 36 radiocarbon dates now available for the New Hebrides with the limited stratigraphy with artifact and pottery serriation, we anticipate the development of tentative cultural sequences for the New Hebrides, integrated with Garanger's work in the central New Hebrides (*AP:* Garanger 1966). The total of our combined efforts should provide a basic understanding of the internal relationships of the New Hebrides and perhaps will shed some light on the origins and external relationships of the New Hebrides, in particular, and for Melanesia in general. It is now demonstrable that these islands have been occupied for at least 3,000 years.

Jose Garanger, of the French Centre National de Recherche Scientifique, returned to the New Hebrides in October 1966 and spent another year in intensive survey and excavation around northwest Efate, the surrounding offshore islands, and the Sheperds.

New Caledonia

During June and July of 1967, continuing work I began in 1952 and 1964, I conducted further excavations at the original Lapita pottery site on the west coast of New Caledonia; I recovered a large sample of Lapita pottery and an intrusive burial.

Loyalty Islands

For ten days during July 1967, Richard B. Shutler, Luc. F. Chevalier, curator of the Noumea Museum, and I conducted an archaeological survey of Ouvea, Loyalty Islands. We recorded several shallow village sites on the main island of Ouvea with the recovery of a few potsherds that apparently came from New Caledonia. On a small islet at the northwest end of Ouvea, we discovered and photographed several small burial caves. On the islet of

Mouly at the southwest end of Ouvea, we collected more pottery from the mainland.

A similar survey was conducted on Maré in 1964, with the recording of a number of old village sites, caves, rock-shelters, stone monuments, and some pottery, apparently from the Île de Pins.

Walpole Island

During June and July of 1967, a French naval and scientific expedition, including Luc F. Chevalier, made two trips to Walpole Island, which lies some distance northeast of New Caledonia. They recovered some Melanesian and Polynesian artifacts in an apparent stratified situation, in which the Polynesian artifacts were below the Melanesian. The inferences of this situation are most interesting. The material along with some shell and stone axes and adzes recovered from guano mining operations in the 1920s is being readied for publication by Luc F. Chevalier and me. This 1967 expedition to Walpole Island is reported in the *Pacific Island Monthly* (*PIM:* Dunn 1967).

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1966*a* Fiji finds may date back to 800 B.C. *PIM* 37, 1: 69.
J.B. Palmer, director of Fiji Museum, reports people in Sigatoka Valley, Viti Levu, as early as 800 B.C.

1966*b* [From a Suva correspondent] Sigatoka sand dunes yield secrets of Fiji's past. *PIM* 37, 3: 61–63.
Describes archaeological work in Sigatoka River area of Viti Levu, Fiji, going back over 2,000 years by Fiji Museum and New Zealand archaeologists.

1966*c* Prehistoric village on Maré is puzzle for archaeologists. *PIM* 37, 5: 71.
Describes a prehistoric village with huge, shaped-coral walls on Maré, Loyalty Islands.

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Arrival of archaeological expedition to work on Espiritu Santo, New Hebrides.

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J.B. Palmer suggests pottery from Ba, Viti Levu, may be 2,500 years old.

1967*a* *PIM* 38, 2: 69. [Untitled].
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1967*b* They were there 3,000 years ago. *PIM* 38, 6: 73.
Elizabeth Shaw, relieving director of the Fiji Museum, reports charcoal with pottery dated at 1290 B.C. on Viti Levu, Fiji.

New Zealand: 1965–1966

Received 14 May 1966 and 21 June 1967

MICHAEL M. TROTTER*

THE rapid progress of New Zealand archaeology reported by Owen Wilkes (*AP* VIII, 1, 103–106, and *AP* IX: 63–72) has continued, and techniques of field excavation, recording, and laboratory analysis are becoming more sophisticated. The overall increase in our knowledge of New Zealand prehistory is somewhat erratic because much of the work is being done by individual groups of volunteers throughout the country, although the general trends in archaeological approach and concept are guided largely by the New Zealand Archaeological Association and the provincial museums and universities.

NEW ZEALAND: 1965

Received 14 May 1966

Much thought is being given to comparative statistical analyses of artifact types and varieties. Most previous investigations into Polynesian cultural succession have been based on typology—whether a particular diagnostic artifact variety or feature was present in a particular assemblage—and this approach has resulted in valuable work being done. In fact, until recently, our whole knowledge of cultural succession in New Zealand was based largely upon the typological approach. However, the increasing data made available as a result of studies of both artifactual and faunal remains on a statistical basis are leading to more detailed interpretations.

A great deal is being written (and still more said) on the divers systems of cultural divisions and the validity of the criteria on which they are based, yet little agreement has been reached on either terminology or divisions. One of the principal reasons for this lack of accord appears to be that a cultural succession worked out for one particular area cannot be applied to another locality in a different part of the country.

Conference

The biennial conference of the New Zealand Archaeological Association was combined with the anthropology section of the Eleventh New Zealand Science Congress organised by the Royal Society of New Zealand, held in Auckland in February 1965. Papers presented fell broadly into one of four groups:

(a) archaeological work in the southwest Pacific;

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(b) classic Maori culture and European contact;
(c) new archaeological techniques; or
(d) reports of recent New Zealand research.

Many of the papers have been, or shortly will be, published in the Association's *Newsletter* or in other publications.

Fieldwork

North Island

During the past year, six sites have been investigated in the Auckland area and some have involved large-scale excavations. The Tairua Moa-hunter site (Smart and Green 1962) on the Coromandel coast (not to be confused with Tai Rua in North Otago) has been reinvestigated by R.C. Green, and two rescue operations were carried out on threatened *pa* sites. One of these had previously been investigated by Golson (1961) who obtained the earliest radiocarbon date known for a defensive earthwork in New Zealand, and further dating is planned by F.W. Shawcross. The other site was excavated by M. Nicholls and R. Oppenheim near Whangarei. During Easter, J.E. Terrell and Shawcross excavated a beach midden on Ponui Island in the Hauraki Gulf, and very intensive investigations into prehistoric economy and ecology were carried out. Just north of the Waikato River mouth, Green carried out a large-scale excavation exposing 185 sq. m (approximately 2,000 sq. ft.) of a complex of pits and terraces. Shawcross and N.M. Roe excavated a Moa-hunter (Archaic) site at the foot of Mount Camel in the Houhora area. This is not only the northern-most site associated with moa-hunting, but also the most northerly excavation to have been carried out in New Zealand. With a surface of 220 sq. m (over 2,375 sq. ft.) systematically examined to date, this is by far the largest area excavated on an early site, for the material culture which has been found indicates its closeness in age to the famous Wairau Bar site (Duff 1956). The economy of the inhabitants was based on the sea, especially on fish, but also on sea mammals, but, unquestionably, some moas were being hunted as well. However, the most important discovery is the clear evidence for the nature of the settlement, which appears to have been made up of several roughly oval patches: each was a distinct cooking area with working and food preparation floors attached to some form of timber-frame house, of an as yet unknown size.

During the summer months of 1964–1965, an expedition from Otago University, led by L.M. Groube, conducted excavations at Paeroa *pa* site on Moturua Island in the southern Bay of Islands. This *pa* had been sacked in 1772 by French marines who made valuable descriptions of the site, and the major aim of the archaeological expedition was to obtain badly needed confirmation of the French plan of the *pa*. Recently planted trees threatened to destroy any evidence in the soil and necessitated immediate investigation (Groube 1964, 1965*a*). Reoccupation of the site since the French plan was made appeared to have left very little of the original village undisturbed (Groube 1966), and attention was shifted to a hill-slope area that showed evidence of agricultural activity. Here, excavation disclosed long strips of artificial kumara soil (shingle and soil) demarcated by deep drains and an earlier buried artificial garden soil presumed to be associated with taro cultivation. Radiocarbon analysis of charcoal in the earlier soil gave a date of A.D. 800±90, one of the earliest dates for human occupation in New Zealand yet obtained—one comparable date is of charcoal from an oven at Redcliffs, Christchurch, which is reported as A.D. 780±65, but it is doubtful that either is reliable.

In South Taranaki (as in other districts throughout the country) field recording of sites has continued, and two Moa-hunter campsites, one of which contained the bones of six species of moa, have been investigated. Specimens of oven stones were obtained for residual magnetism studies by J. Gellen.

Work on site-recording by the Wellington Archaeological Society has been under way for six years and initial surveys are nearly completed (Daniels 1965). A Moa-hunter period site near Foxton has been excavated, and some salvage work has been done on a disturbed site at Paremata that yielded cultural remains dating back to very early times. A planned program of excavation has now been started with the long-term aim of determining the occupation sequence in the area. It is known that Moa-hunter and Classic elements were present, but their precise relationship is not clear. A radiocarbon date of A.D. 1436±48 for a Moa-hunter site at Paremata was obtained from a sample submitted to the Institute of Nuclear Science, Lower Hutt.

South Island

The Nelson group have resumed excavations at a small fishing campsite in Cable Bay. The lower levels date to the Moa-hunter age, but probably not to the earliest period. Like many similar sites in the South Island (cf. Trotter 1965*b*), the most important artifacts found are fishooks, while other diagnostic material is rare (adzes form only 1 percent of the artifacts from this site). Both one-and two-piece hooks made of moa bone are common. J.R. Eyles is continuing his investigations of argillite quarries in the district.

Salvage work on sites threatened with destruction by curio hunters and public works comprised most of the field activities in Canterbury and North Otago, and excavation has been undertaken on four separate sites, all of which had Moa-hunter associations. With the creation of an artificial lake imminent in the Waitaki Valley for electricity production, I organized, for the Canterbury Museum, a site survey of the 5,000 acres to be inundated. Three sites were recorded in the bed of the proposed lake, two of which were already largely destroyed. The third was a Moa-hunter camping and cooking area, and a test area of 11 sq. m (120 sq. ft.) was excavated. The numerous bones of three species of moa and the rough artifacts obtained confirmed earlier reports of the scale of inland moa-hunting in the Waitaki Valley (Duff 1956: 271–272). Investigations were completed at Moa-hunter sites at Bromley, Christchurch, and Hampden, North Otago, and are continuing at Moa-Bone Point Cave in Christchurch. A number of important radiocarbon dates have been obtained by T.A. Rafter, of the Institute of Nuclear Sciences, Lower Hutt, from moa bone samples collected by the Canterbury Museum. Rafter has established a reliable method of dating the collagen in the bone, disregarding the carbonate that may be affected by air contamination, and he has obtained confirming dates from samples of other contemporaneous materials, both from occupied and prehuman deposits. The early use of barbed two-piece fishhooks and the survival of several species of moa and other extinct birds in the fourteenth- to the sixteenth-century period is now well established in North Otago (see Trotter 1965*b,c*). Recently obtained dates for archaeological sites include those listed below; their significance will be discussed in future publications:

Heaphy River, West Coast, Moa-hunter camp	A.D. 1518±70
Ototara Glen, North Otago, Moa-hunter camp	A.D. 1422±32
Tai Rua, North Otago, Moa-hunter camp	A.D. 1447±32

Waimataitai, North Otago, Moa-hunter camp	A.D. 1324±30
Katiki Point, North Otago, Classic *pa* site	A.D. 1739±56

D. Simmons, of the Otago Museum, took a party of anthropology students to a site at Papanui Beach, Otago Peninsula, where two shallow occupational layers were excavated. Artifactual and faunal evidence from the lower layer was typical of late prehistoric sites in Otago, while the upper deposit contained Polynesian ovens and faunal evidence that probably dates to the early nineteenth century A.D. A small excavation was also made at the Shag River site in North Otago to obtain material for radiocarbon analysis; the date supplied for the earliest occupation of the site is A.D. 1105±56.

In the summer of 1963–1964, Simmons led an expedition sponsored by the New Zealand Historic Places Trust and the Otago Museum to the Chatham Islands to record the fast disappearing dendroglyphs and to conduct an archaeological survey. Dates have now been released for two archaeological deposits investigated; one at the extreme northwest tip of the island that yielded artifacts of late Moriori type has been dated ca. A.D. 1700, while the other dates the abandonment of a cave near the lagoon as ca. A.D. 1689. This site contained 5 ft. of deposit that included the bones of extinct birds.

Site Recording Scheme

The number of sites recorded under the New Zealand Archaeological Association site recording scheme is steadily increasing, though there has been more activity in some areas than in others. In co-operation with the National Historic Places Trust, the Association is attempting to obtain permanent protection for important sites against destruction by vandalism or from public or private works. The total number of archaeological sites recorded in each district is as follows:

	1964	1965	1966
North Auckland (new area in 1965)	–	342	369
Auckland	527	668	698
Rotorua—Bay of Plenty	124	180	230
East Coast, North Island	7	7	7
Waikato	77	106	107
Taranaki	327	440	440
Wanganui	57	57	90
Inland Patea	–	–	14
Hawkes Bay	14	54	57
Wellington	213	243	314
Marlborough	11	119	200
Canterbury	219	273	444
Otago	47	49	116

NEW ZEALAND: 1966

Received 21 June 1967

Salvage Archaeology

Papers and discussion at the extended general meeting of the New Zealand Archaeological

Association held at the Dominion Museum, Wellington, from 4–6 June 1966, were devoted to salvage archaeology and site protection. Throughout New Zealand, archaeological sites are being endangered and, in some cases, destroyed by a number of causes—the main ones are:

(a) curio hunting and unskilled excavation; (b) national hydroelectric works; (c) road and housing developments; (d) farming operations; (e) natural causes—particularly sea and river erosion.

Generally it is difficult, if not impossible, to obtain archaeological data from sites being dug by curio hunters and unskilled excavators, and in most cases there is little existing legislation that can be employed to prevent such loss. It is usually possible to record sites and conduct salvage or rescue operations on sites about to be destroyed or rendered inaccessible by public and private development works and farming operations, proving there is liaison between the bodies or individuals concerned and the archaeologists. Where natural causes are concerned, salvage work is often possible, and more complete coverage of recorded sites is desirable for this purpose.

Site Recording Scheme

The central file keeper of the New Zealand Archaeological Association site recording scheme reports that the number of sites recorded during 1966 has, on the whole, been disappointing. With the exception of one or two districts, the impetus which developed over the last few years appears to have been lost. The total number of archaeological sites recorded in each district has already been presented in this report.

Fieldwork

North Island

During the May university vacation, L.M. Groube continued his work in the Bay of Islands. Problems in interpreting structural remains at Paeroa village have directed his attention to "Te Kuri's Village," which is well located on early French maps, in the hope of finding undisturbed house remains (Groube 1966: 109–111). However, the May excavations appeared to have missed the village site, and further exploratory work will be necessary along the 10 to 11 acres of ridge.

Analysis of bone material from the Hohora Moa-hunter site (mentioned earlier in this report) has been time consuming and it will be some months before the work is completed, but the results should be rewarding. Already it has been possible to draw preliminary conclusions about the relative importance of moa, sea mammals, and shellfish in the economy of this group.

At Lake Ngaroto, some 13 mi. south of Hamilton, the work of the Waikato Archaeological Group has shown that an island of about one and a quarter acres has been artifically constructed, similar to the *crannogs* of Ireland or the *packwerkbauten* of Switzerland. The great numbers of thin floors uncovered show almost continual occupation from the Classic Maori period into European-contact times. Members of the Waikato Underwater Club are investigating a submerged village in Lake Okataina. It appears to have been built on a peninsula or an island and has rows of stakes (still standing) up to 13 ft. high along two sides (presumably for defensive purposes) and steep rocky cliffs elsewhere. The enclosed area is about 230 ft. by 50 ft., and the water level would have to be lowered some 30 ft. for it to be dry land (Johnson and Calcott 1967).

A Government grant has enabled T. Hosking, in cooperation with New Zealand Historic Places Trust representative R.A. Batley, to carry out a full-time investigation of Maori and early European sites that will be affected by the Tongariro power development scheme. The work comprises recording and mapping of sites, salvage excavation, and reinterment of some human remains.

The Wellington Archaeological Society has continued work on the Moa-hunter site near Foxton and a cooking unit, comprising a midden with an oven and a shelter containing a small scoop hearth, has been defined. This unit appears to have been attached to a larger structure, perhaps 12 ft. by 6 ft., containing a hearth and scattered artifacts.

South Island

Work has been continued at Cable Bay by the Nelson Historical Society's Archaeological Group. There are four occupational layers in the site being investigated, three Moa-hunter and one Classic. The lower levels contain bones of three species of moa *(Dinornis, Anomalopteryx,* and *Megalapteryx)* and have been radiocarbon dated as A.D. 1325±71. In May, the Nelson team made excavations in a cave in Triangle Valley, but because of disturbance, results were quite inconclusive. Another Moa-hunter site is also being gradually excavated at Tahunanui; it comprises a single occupation layer with a very high artifact content and bones of *Anomalopteryx*. It has been radiocarbon dated as A.D. 1361±70.

In January and February and again in November, I directed excavations by the Canterbury Museum Archaeological Society at Omihi near Kaikoura. Thirty-five 5 ft. squares were excavated at this Classic period site, and some 4500 artifacts, mostly flakes of flint, were recovered. An important feature of the site was the number of pits that had been dug at the time of occupation. Some were 3 ft. across and more than 2 ft. deep, while others were only a few inches in each dimension. Their purpose has not yet been determined.

During the year, the Canterbury Society has been excavating at a Classic village site near Woodend. The exact nature of this site has not yet been determined, although there has been considerable activity in the manufacture of nephrite artifacts by percussion methods. Much work has also been done recording and mapping other sites in Canterbury.

Experimental work on fluorine analysis for determining the contemporaniety of bones found in a site suggests that it is a very unreliable method under average New Zealand conditions. Samples of known contemporaneity generally show wide variations in the amount of fluorine absorbed from the ground water. A number of radiocarbon dates for Canterbury and North Otago sites have been determined by the Institute of Nuclear Physics, Lower Hutt. Some of the more important dates are as follows (the first three sites were mentioned earlier):

Ototara Glen, North Otago, Moa-hunter camp	A.D. 1483±70
Tai Rua, North Otago, Moa-hunter camp	A.D. 1465±32; A.D. 1407±32
Woolshed Flat, Waitaki Valley, Moa-hunter camp	A.D. 1457±70
Hampden Beach, North Otago, Moa-hunter camp	A.D. 1412±70; A.D. 1396±53

Otago fieldwork has been concerned largely with the problem of inland exploitation. An expedition to the nephrite sources near the head of Lake Wakatipu investigated and mapped a number of sites, including a Classic fortified hill site, and an unusual village of twenty paved house mounds. Work on a coastal site is also continuing.

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Australia: 1964–1966

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THE small number of young and active archaeologists working in Australia are intensely interested in establishing sound methodological criteria for the description and classification of stone implements and for the analysis of stratified assemblages so that they may break away from the time-honored systems of Europe. These archaeologists are loath to name their assemblages and prefer to compare the traits in each layer of their sites; they want to discard the side, side and end, double side, end, etc., subdivision of scrapers, and lump them all together, comparing groups of them by dimensions, weight, length, and angle of trimmed edge and platform. They are examining the reasons for culture change—evolutionary, diffusional, environmental, or human—in sites; and they are investigating the ecological setting and the geographical variations of assemblages throughout the continent. Some of these methodological criteria can be determined through more expeditious publication of the results of fieldwork; one cause for delay, of course, is the uncertainty of interpreting the finds of this pioneering and stimulating period of Australian prehistory.

In this review, I shall comment on the main archaeological developments that have been published in the last two and one-half years. I concluded (1964*a*), as a result of the excavation of five sites in the Capertee Valley of eastern New South Wales, that the Capertian and Bondaian phases of my Eastern Regional Sequence illustrate the history of stone working in this area from an early period (7360–3600 B.P.) of primary flakes, saws, and uniface pebble choppers to a later period (3600–900 B.P.) of elegant *bondi* points, microlithic implements, hafted specialized and unspecialized tool types, and ground-edge axes. I linked the Capertian with the Gambieran flint industry (Tindale's Tartangan c) in the Coorong of South Australia, distinguished the trimmed nose and a few long-edged side scrapers as Tasmanoid affinities in the Capertian, and drew attention to the importance of diffused traits in the Bondaian phase. A complementary paper by Walker (1964), is the first soil analysis in Australia of archaeological sites and the soil bodies defined above support the Capertian and Bondaian phases. McBryde's (1964*a*; 1965*a,b*) findings at Seelands, Wombah, Bendemeer, and Whiteman's Creek on the north coast of New South Wales, Megaw's (1965, 1966*a,b*) findings at Curracurrang, and other unpublished sites confirm the validity of the Capertian and Bondaian phases, but as yet only one further Eloueran phase assemblage has been found, at Curracurrang by Megaw, who thinks the Eloueran phase needs further definition. Megaw (1966*b*) excavated fishhook files for the first time at Gymea Bay, New South Wales, and stated that the available evidence about the bone points, *muduks*, supports the theory that they were used as spear barbs and points—some as nose ornaments—but Megaw does not confirm the claim that they were fish-gorges or toggles.

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Mulvaney and Joyce (1965), in describing the Kenniff and The Tombs excavations in eastern Queensland, proposed solutions to some of the Australian problems: the authors divided the assemblages into a long non-hafted period of 11,000 years of hand-held scrapers, in which the weight and size of wasted material showed variations of possible cultural significance, and a hafted period in the upper 2 ft. of deposit from 4,000 years ago to modern times, in which geometric microliths, *pirri* uniface points, *elouera,* adze flakes, *bondi* points, *tula* chisels, a burin, millstones, and edge-ground axe flakes occur with large *arapia* blocks, *juan* knives, and blade and slice implements. Mulvaney and Joyce subdivided the hafted period into microlithic hafted and late hafted because the microliths disappeared abruptly; they cited the Katherine, Kintore, and Ingaladdi sites in the Northern Territory, Laura in Cape York, Seelands, Curracurrang, Capertee, and Noola in New South Wales to support their hafted and non-hafted divisions. Cultural labeling was eschewed in favor of assessing man's exploitation of, and his ecological adaptations to, his environment in the light of technological factors. A remarkable feature of the Kenniff and The Tombs sites is the correlation of their non-occupation for 5,000 years with a similar long period of aridity. Mulvaney and Joyce stressed the importance of local manifestations in the composition of the implement range of both eras both at Kenniff and The Tombs and elsewhere in Australia, and they withdrew a former claim for Tasmanian affinities in the non-hafted assemblages.

The attempt to avoid naming assemblages is a worthy one and the two major divisions—hafted and non-hafted—will, if substantiated in the future, be of basic importance in Australian prehistory. But the very variety of assemblages in each of these moieties, as it were, will necessitate local terms or site names to distinguish them, and where more than one site (as Kenniff and The Tombs) contain similar assemblages, difficulties of comparison will occur. My own explanation for the varying proportions of similar widespread ranges of implement types in the hafted and non-hafted periods, particularly in the former, is differential diffusion in time and space on the vast continent of Australia: there were no serious barriers to diffusion except for the Great Dividing Range in the east, and there was an intricate network of local and trunk trade routes. I believe the mixing of implement traits in marginal areas in the hafted periods of the Eastern Sequence and the Inland Regional Sequence supports this claim.

Megaw (1966*a*), in a preliminary review, stated that his Curracurrang excavation revealed a tripartite division comparable to my Capertian-Bondaian-Eloueran sequence, and he added the fishhook file to the range of implements of this sequence; he rejected Tindale's attempt to include the Bondaian phase within his Mudukian, finding support for the former phase in the Seelands, Wombah, and Whiteman's Creek sites that McBryde excavated in northern New South Wales. Excavations in eastern New South Wales, therefore, support the validity of the Eastern Regional Sequence and, in my view, the hypothesis that sites like Kenniff are marginal with a predominant basis of Tula Inland Sequence implements mixed with Eastern Sequence types; at the same time, the eastern New South Wales sites provide solid support for Mulvaney's non-hafted and hafted divivisions of Australian prehistoric industries.

Four reviews of Australian prehistory were published in this 1964–1966 period by Golson (1964), Mulvaney (1964*a*), Micha (1965), and me (1965*a*, 1966*f*). Widely recognized in the reviews are the Eastern and Tula Inland Regional sequences and, possibly, a third northern one, although Golson believes that the sharp division between the Capertian, on the one hand, and the Bondaian-Eloueran, on the other, needs further study to ascertain whether the break was as abrupt as it appears to be from the present evidence. Similarly, the Kartan and the Gambieran phases need more detailed research to establish their distinguishing features and provenance. The Tartangan is rejected generally as a cultural term apart from the type site. It appears to me, therefore, that with the dropping of the Tartangan and the Mudukian phases, the phases of the Tula Inland Sequence are thus tending to become Gambieran, Pirrian, and Murundian. Golson emphasized the need to study implement-type frequencies in all sites and to judge cultures in terms of total characteristics or assemblages, not by the absence or presence of one or two implement types. Golson's reanalysis of the material from the Oenpelli sites excavated in 1948 by Setzler and me revealed the existence of two assemblages—point and *elouera*—and not one, as we reported. Golson, too, reiterated the vital importance of the geometrical microliths in Australian sequences and the need to ascertain their precise distribution on the continent; they are absent in northern Australia. All prehistorians recognize the difficulty in explaining the ambiguity and inconsistencies in the occurrence of uniface pebble tools, backed blades, and microliths in the Eastern and Tula Sequences, but to my mind the principal factor is differential diffusion and the time involved in tribal acceptance and development of implement types. Micha's (1965) paper revealed that European anthropologists are at last becoming aware of the prehistoric cultural situation in Australia and of the great number of problems yet to be resolved. Micha drew attention to the unexpectedly early appearance of the saw-edge at Capertee, to the important part played by the culture heroes in spreading new ideas in aboriginal culture, and to the support that radiocarbon dates are giving to the estimated length of time Capell and O'Grady believe was necessary for Australian languages to develop and diverge so greatly. Mulvaney (1964*a*) and I (1965*a*, 1966*f*) restated the Capell-O'Grady views on Australian prehistory, and I postulated that an early, a middle, and a late stone age existed on the continent.

Several unusual discoveries were made in excavations. Mulvaney, Lawton, and Twidale (1964) revealed a 2-in. band of flood deposit between 1220±94 B.C. and 1000±91 B.C., some 23.5 ft. above river level in Fromm's Landing No. 6 site on the lower Murray River of South Australia. It is the highest level for this river yet recorded and obviously indicates a period of heavy rainfall. The site yielded a Thylacine tooth and is notable for the absence of pirri *uniface* points. Megaw (1966*b*) reported stake holes for the first time in an excavation in Australia in his Gymea Bay site. At Curracurrang, he found considerable disruption of the deposit caused by the excavation of a large portion of it by the aboriginal occupants in an effort to improve the site for habitation.

Metrical analysis has become the principal method of evaluating stratified cultural assemblages, and to date Tugby has employed the matrix-analysis method for axes; Mulvaney (1965) used a metrical analysis of "scrapers" and waste flakes from Kenniff and The Tombs; and Glover (1965), a factor analysis of Bondaian implements from Curracurrang. A satisfactory method of metrical analysis, based upon the same set of criteria and applied to all Australian assemblages, would yield most interesting comparative results, but the methods in use are too diverse as yet. It is essential for the characteristics of Australian implement types to be or not to be substantiated by such a method, but whether metrical methods can establish a system of classification has yet to be proved. Glover, in a University of Sydney thesis (1965), employed the factor analysis method to classify 96 Bondaian-phase implements from Megaw's Curracurrang site; as a result, he confirmed the validity of the *elouera* as a distinct type. Although he rejected the traditional classification of geometrical microliths according to shape (*bondi* point, crescents, trapezoids, triangles) in favor of the term backed blades, he suggested no substitute for this useful terminology in such widespread use.

Matthews (1966) concluded from metrical analysis that Kangaroo Island pebble tools differ from Yamba and Seelands (New South Wales) and Sai Yok (Thailand) samples in all variables examined, and the latter three differ in weights. The Kangaroo Island and Wakefield River (South Australia) samples are similar in weight and are heavier than the other three samples that have comparable mean weights. Matthews thinks the differences are probably the result of function or method of use. The Yamba and Seelands samples have a similar cutting angle and length-breadth ratio, and the Yamba, Seelands, and Sai Yok samples have comparable thickness. Matthews believes the inference is that the uniface pebble tools from Kangaroo Island are not to be related to those from Yamba, Seelands, or Sai Yok; the Seelands and Yamba implements are more closely related to each other than either is with Sai Yok, and the Seelands and Sai Yok assemblages are further related by truncated tools and similar configurations of the junction of the upper and lower face. Matthews concluded that caution should be exercised in any attempt to see historical relationships between these three samples of pebble tools because they are removed from their natural setting: sources of material and the environment of the makers were not examined, and their ages are not known.

Two very important papers appeared by Tindale (1965) and Thomson (1964) in which firsthand observations on the manufacture and hafting of stone implements and their use in making wooden weapons were described. Tindale witnessed the making of *tjimari* knives at Mount Davies, South Australia, and of *kandi tjuna* chisels and *kandi mirnu* knives with gum grips at Mount Gill, Rawlinson Ranges, Western Australia. The *kandi tjuna* flakes were selected by the Nakako tribesmen from their knapped pieces, hafted in gum on a handle, and edge-trimmed after mounting (not before, as with the *tula* chisel). Constant use and retrimming, he stated, produced the *burren* slug; thus, a cultural and geographical differentiation was established between the Western Desert tribes and the Central Australian tribes whose *tula* chisel produces a different slug. Both slug types, however, occur on western New South Wales and Queensland sites and, in my view, the point is not yet proved that both could not have been derived from the *tula* chisel alone. The *burren* slug, in fact, appears to have a wider and more important connotation in eastern Australia from the Murray River to Cape York, and its origin within the industries of this region needs detailed study. Tindale described tooth trimming of knives and Kimberley biface points, and edge-trimming with a stick or boomerang by the Ngadadjara in the Warburton Ranges.

Thomson (1964) also described the manufacture of weapons with one-and two-handed choppers and hand axes, heavy scrapers, hafted chisels, and similar methods of trimming to those observed by Tindale. The chisel was trimmed by biting after mounting, and he said that it is a different implement to the central Australian hafted chisel *(tula)*. His observations of stone-implement manufacture were made in the Western Desert and, with Tindale's, constitute vitally important firsthand observations on our knowledge of aboriginal techniques.

North (1964) proposed the name *Moonee* adze for truncated uniface pebble implements with a straight-end working edge, and Johnson (1964) proposed the term *wardulka* pick for a distinctive pointed implement made on coroids and blocks and *tjunggani* for the roller-type muller—both collected on the Pitjandjara tableland in northwestern South Australia; there, Johnson defined the Tollu industry on old campsites associated with terra rossa soils and kunkarized dunes and newer campsites on recent dunes; the campsites range in age from Pleistocene to recent.

Macintosh (1965*b*) reviewed current opinions on aboriginal man in Australia: his relationships with Southeast Asian finds, the trihybrid theory, his likeness to *Homo solensis,* and his migration routes across sea passages. Macintosh placed the Mossgiel skull between Talgai, Cohuna, and *Homo solensis;* he rejected Tindale's claim that the Tartangan skull is Tasmanoid, and commented that the indeterminable racial affinity of the Aitape frontal bones and others make it a dangerous item for speculative theorizing about aboriginal migration. Recent investigations by Gill and Macintosh will, it is anticipated, produce a radiocarbon date for Talgai, morphologically still the most primitive of fossil Australian crania. The differences, however, according to Macintosh, between fossil and modern skulls in Australia is not great.

In a valuable and most complete assessment of material on the physical anthropology of the Tasmanians, Macintosh and Barker (1965) stated that the Tasmanians, if not pygmoid, were of less stature than the Australians, and the authors vizualize the cranium as a hybridized version of deviating types derived from a common racial stem and anticipate that if early crania are excavated in Tasmania, they will not be precisely similar to present-day Tasmanians or Australians. Macintosh and Barker believe that the skull form of the Tasmanians is well established—there is good general agreement on observed similarities and differences—and that it is now unreasonable to doubt that they walked into Tasmania from Australia on a land corridor that existed 12,000 years ago from northeast Tasmania to Wilson's Promonotory in Victoria.

Jones (1964, 1965*a*) carried out two seasons of fieldwork in Tasmania with the aim of isolating total industries and of investigating the ecological and geographical variations and adaptations within the island. Rich yields of stone and bone implements and of faunal remains were obtained; the notable discoveries were of human cremations through the 7-ft. deep deposit at West Point and of the first stone arrangement (1965*b*) in Tasmania—a row 270 ft. long of 138 flat stones arranged as a pathway on a midden, with a second one below it, at the Bay of Fires. He discovered also that two rock-shelter deposits at Rocky Cape are correlated with changes in sea level.

Yamaguchi (1966) examined collections of skeletal material in Australian universities and museums and defined three types of crania—Australian, Intermediate, and Ainoid—and he discovered an artificial enlargement of the foramen magnum in both Ainu and Australian skulls.

Some interesting evidence about the dingo has been presented. Meggitt (1965), in summarizing the evidence on the use of the dingo by the Aborigines, concluded that Down's hypothesis that a relationship of mutual exploitation developed between mesolithic hunters and wild dogs becomes plausible in that such a relationship existed between the aborigines and the dingo. According to Meggitt, this animal was not very useful to the aborigines; the tame one was not an effective hunting dog except in ecologically specialized regions where particular kinds of game were present. The hunters allowed dingoes to hunt down game, which the hunters ate, giving the scraps to the dingoes. Dingo teeth were excavated by McCarthy (1965*a*) in Site 3 at Capertee with an age of just over 3,000 years; a complete dingo skeleton was discovered in Fromm's Landing No. 6 by Mulvaney, Lawton, and Twidale (1964) with an age of 3,000 years; and unspecified remains were found in Levels 6 and 8 at Mount Burr, South Australia, by Campbell and Hossfeld with an age of 7,000–8,000 years—the oldest stratified remains associated with human (Gambieran?) implements yet recovered.

An immense amount of photographic and scale recording of rock art is being done in all of the major areas on the continent. The Western Australian Museum is making a detailed photographic survey of the Kimberley Wandjina and allied cave paintings, obtaining interpretations where possible; for the Australian Institute of Aboriginal Studies, Robert Edwards is carrying out a similar survey of Arnhem Land and Northern Territory paintings; Trezise has produced a remarkable series of scale recordings of Cape York paintings; Mountford and Edwards have recorded sites in the rain-forest region of northeastern Queensland; and Sim is carrying out a program of recording of the little-known but numerous sites in the Sydney-Hawkesbury area of New South Wales. From radiocarbon samples, Macintosh (1965) established the age of a group of ritual paintings in this area at about A.D. 1400 and nearby paintings A.D. 1750–1800, while McBryde obtained dates of A.D. 930–1000 for paintings at Bendemeer, New South Wales. McBryde noted a strong difference between the linear art of the tableland area and the stencilled art of the north coast of New South Wales.

The recording of rock engravings has not been so intensive: B.J. Wright (1964) has described some sites in a survey that he has made of northwestern Australian sites; Edwards (1964*a*,*b*; 1965*a*,*b*) and Mountford and Edwards (1964) recorded several sites in the Flinders Ranges, South Australia; Sim (1965) found others in the Sydney-Hawkesbury area where over 90 percent of the one thousand or so sites have now been recorded; and McBryde (1964*b*,*c*) discovered sites in northeastern New South Wales in which tally grooves are predominant. Mountford (1965*a*) classified northwestern Australian engravings on weathered rock surfaces as poundings and those in the south-central Australian region as peckings; this regional dichotomy will probably not be substantiated, as the former series is merely a regional variation, of the pecked or hammerdressed intaglio technique as a whole. Crawford (1964) questioned the four phases of rock engravings in Australia that I defined in 1962 on grounds that he cannot distinguish the superposition of one style over another; but conclusive evidence from South Australian and western New South Wales sites supporting pecked over linear phases is now abundant. The most difficult problem is to relate the Carvarvon, Queensland, style to the western and southern sequences. Mountford's and Edward's claim (1962) that an outline fish, a marine turtle, and crocodile figures engraved in the Flinders Range, South Australia, sites was attacked by me (1964*b*) on the grounds that the very ancient origin claimed for these three figures is inconsistent with the history and development of rock engravings in Australia, that they are in three strongly contrasting styles that are consistent with the above four phases in rock engravings, that fish have been painted and engraved a long way from the sea in other parts of Australia, and the so-called marine turtle is a long-necked freshwater tortoise.

Although the floors of rock-shelters excavated in various places have yielded pigments, few correlations can be made, as yet, between the styles of paintings on the walls and roofs and the cultural assemblages. The three-phase stone industry sequence and the four-phase cave art sequence in eastern New South Wales offer possibilities of correlation in the future. A correlation of similar motifs in rock engravings and paintings occurs in the Sydney-Hawkesbury area and other areas in Australia, but no overall study has yet been made of similarities and differences. Golson (1964) contended that the typological approach is the only approach to the study of the vast array of this art on the continent with the addition of the meanings of motifs whenever they can be obtained.

The Australian Institute of Aboriginal Studies is compiling a catalogue of museum holdings throughout the world of Australian aboriginal artifacts of all kinds, and preliminary results

(McCarthy 1966) indicate that Great Britain, Europe, the United States, and New Zealand museums contain important collections, while in Africa, Central America, South America, and Asia, the collections are very limited.

A one-day conference of prehistorians during the General Meeting of the Australian Institute of Aboriginal Studies in Canberra, May 1966, discussed the nomenclature of stone implements and cultures and the need for a standard nomenclature of rock art in Australia. Papers given by various contributors are to be incorporated in a handbook on Australian archaeological field methods. At Hobart in August 1965, Section F held a symposium on progress in Australian archaeology with papers by I. McBryde, R.J. Lampert, N.B. Tindale, R.M. Jones, and J.V.S. Megaw. A second symposium on the Tasmanian aborigines included papers by W.F. Ellis, N.J.B. Plomley, G. Reber, and R.M. Jones that are to be published by the Queen Victoria Museum.

A new journal, *Archaeology and Physical Anthropology in Oceania,* has been issued by the University of Sydney to provide an avenue of publication for the growing number of papers and reports in archaeology and physical anthropology. Similarly, the Australian Institute of Aboriginal Studies provides for the publication of monographic studies in its *Occasional Papers.*

RADIOCARBON DATES (B.P.)

SITE AND DESCRIPTION	LABORATORY	DEPTH		LAYER	DATE
		INCHES*	CENTIMETERS*		
		Northern Territory			
Ingalladi (Mulvaney)	GXO 103	(15- 19)	37.0- 48.0		1545± 75
	GXO 104	(34- 39)	85.0- 98.0		6255±135
		Queensland			
Kenniff (Mulvaney)	GaK 522	15- 17	(37.5- 42.5)		1600±100
	NPL 32	24- 28	(60.0- 70.0)		2550± 90
	NPL 65	30- 33	(75.5- 82.5)		3830± 90
	GaK 523	43- 46	(107.5-115.0)		4130± 90
	NPL 66	48- 51	(120.0-127.5)		5020± 90
	GaK 524	52- 54	(130.0-135.0)		5370±140
	GaK 525	54- 57	(135.0-142.5)		4650±100
	GaK 646	62- 64	(155.0-160.0)		10280±180
	NPL 67	67- 68	(167.5-170.0)		12610±110
	NPL 33	70- 80	(175.0-200.0)		12900±170
	NPL 68	89- 92	(222.5-230.0)		16130±140
	GaK 526	107-111	(267.5-277.5)		13200±300
	GaK 645	120-126	(300.0-315.0)		9650±100
	GaK 527	126-129	(315.0-322.5)		9300±200
The Tombs (Mulvaney)	NPL 30	22- 25	(55.0- 62.5)		3400± 97
	NPL 31	38- 42	(95.0-105.0)		3600± 93
	NPL 64	81- 84	(202.5-210.0)		9410±100

* Measurement in parentheses supplied by editor

South Australia

SITE AND DESCRIPTION	LABORATORY	DEPTH INCHES*	DEPTH CENTIMETERS*	LAYER	DATE
Cape Martin (Tindale)					
Tartangan C.	NZ 69				8800±120
Fromm's Landing No. 6 (Mulvaney)					
	NPL 28			Layer 8 (micro-points)	2950± 91
	NPL 29			Layer 11	3170± 94
	NPL 63			Layer 16 (mukuk and microliths)	4450± 90
Fromm's Landing No. 9 (Mulvaney)					
One of the earliest occupation layers	GaK 63				3450± 90
Cape Northumberland (Tindale)					
Murundian phase	GaK 336				1470±120
Bevilaqua Cliffs (Campbell and Hossfeld)					
A. Charcoal from upper terra rosa	GaK 397				8250± 60
C. Shells from upper terra rosa	GaK 423				6350±100
D. Charcoal from black sand over terra rosa	GaK 398				760± 58
F. Shells from black sand over terra rosa	GaK 422				820± 90
Mount Burr (Campbell and Hossfeld)	GaK 424	A. 5– 12	(12.5– 30.0)		320± 90
	GaK 425	B. 12– 24	(30.0– 60.0)		380± 90
	GaK 426	C. 24– 48	(60.0–120.0)		1020± 40
	GaK 428	D. Below sandy horizon			7030± 40
	GaK 427	E. Below sandy horizon			7450±270
	GaK 429	F. 132–144	(330.0–360.0)		8600±300

Western Australia

SITE AND DESCRIPTION	LABORATORY	DEPTH INCHES*	DEPTH CENTIMETERS*	LAYER	DATE
Koonalda (Gallus)	GaK 510			Floor B, Trench III, Assemblage 5	3700±270
	GaK 511			Layer VI, 3 yd. (2.7m) deep	18200±550

Western New South Wales

SITE AND DESCRIPTION	LABORATORY	DEPTH INCHES*	DEPTH CENTIMETERS*	LAYER	DATE
Lake Menindee (Tindale)					
Hearth above implements and extinct animal bones	GaK 335				18800±800
Mootwingee (McCarthy)					
Late Tula Inland Sequence	V 11	8– 19	(20.0– 47.5)		350±250 285± 80
Mount Grenfell (McCarthy)					
Site 2, Late Tula Inland Sequence	V 49	7– 8	(17.5– 20.0)		200± 65

* Measurement in parentheses supplied by editor

SITE AND DESCRIPTION	LABORATORY	DEPTH INCHES*	DEPTH CENTIMETERS*	LAYER	DATE
Wuttagoona (McCarthy)					
Late Tula Inland Sequence	V 50				310± 75
Yandama (McBryde)					
Fireplace? Late Tula Inland Sequence	GaK 378				Modern 250

Eastern New South Wales

SITE AND DESCRIPTION	LABORATORY	DEPTH INCHES*	DEPTH CENTIMETERS*	LAYER	DATE
Blaxland's Flat (McBryde)					
Bark bundle burials	GaK 463				1090± 60
Bark bundle burials	GaK 464				1230± 50
Bendemeer (McBryde)					
Blade tools	GaK 569	4–5	(10.0– 12.5)	Trench 1, Zone a, Layer 1	410± 40
Blade tools	GaK 570	7	(17.5)	Trench 1, Zone a, Layer 1	740± 40
Bondaian tools	GaK 571	9	(22.5)	Trench 1, Zone c, Layer II	535± 40
Whiteman's Creek (McBryde)					
Site 3	GaK 371			Layer 1	310±100
LVIa Uniface pebble, flake and blade tools	GaK 372				1640±120
	GaK 373				1870±140
Seelands (McBryde)	V 26	6–9	(15.0– 22.5)	Zone d, Layer II	351± 60
	V 25	12	(30.0)	Trench 2, Zone c, Layer II	870± 80
	GaK 370			Layer IIIA	1210± 30
	V 11	18	(45.0)	Zone C3, Layer IIIA	2850± 50
	V 24	30	(75.5)	Trench 2, Layer V	4040± 65
	V 29	18–24	(45.0– 60.0)	Trench 1, Zone c, Layer 1	6445± 75
Chambigne (McBryde)	V 39	3	(7.5)	Layer 1	1350± 75
	V 40	27– 30	(67.5– 75.5)	Zone d, Layer 1	1640± 80
Jacky's Creek (McBryde)	V 41	5–6	(12.5– 15.0)	Trench 1, Zone 6, Layer 1	1310± 70
	V 42	15	(37.5)	Trench 1, Zone a, Layer III	1465± 75
	V 43	6–9	(15.0– 22.5)	Trench 1, Zone e, Layer IIA	1225± 70
	V 44	6	(15.0)	Trench 2, Zone d, Layer 1	1285± 90
Wombah (McBryde)					
Site 1	GXO 108			Layer IIA	1860±180
Site 1, *bondi* points and uniface pebbles	GaK 374			Layer IIA 2	2580±150
Site 1	GaK 375			Layer VIII	2670±160
Site 1	GaK 376			Layer VIII	2870±130
	GaK 566	17–18	(42.5– 45.0)	Square g, Layer IIA, Spit 1	1530± 90
Site (II)	GaK 565			Layer IIA, Spit 3	2930±100

* Measurement in parentheses supplied by editor

SITE AND DESCRIPTION	LABORATORY	DEPTH		LAYER	DATE
		INCHES*	CENTIMETERS*		
Site (II)	GaK 564			Layer IIA, Spit 2	2960±120
Site (II)	GaK 567			Layer IIA, Spit 3	3040±120
Site (II)	GaK 568			Layer VIII	3230±100
Capertee (McCarthy)					
Upper Bondaian phase	V 33	8–10	(20.0– 25.0)	Layer I	2865± 57
Junction of Bondaian and Capertian phases	V 34	41–43	(102.5–107.5)	Layer VII	3623± 69
Base of Capertian phase	V 18	68–76	(170.0–190.0)	Layer VIII-IX	7360±125
Noola (Tindale)					
Base of Capertian phase	GaK 334				11600±400
Gymea Bay (Megaw)					
Skeleton 2 with middle and upper Eastern Regional Sequence tools	GaK				1220± 50
Curracurrang (Megaw)					
	GaK 462	9	(22.5)	CM/15a	Modern L200
	GaK 483	9	(22.5)	15Mb	Modern 230
Eastern Regional Sequence (applies to all dates)	GaK 481	27	(67.5)	10–15b	1580±130
	I 1135	30	(75.0)	10 B/L	2150±180
	GaK 393b	39	(97.5)	10L	2500±400
	GaK 394a	27	(67.5)	5La	3880±150
	GaK 394b	27	(67.5)	5Lb	3000±120
	GaK 482	43	(107.5)	15L	7450±180
Shellharbour (Tindale)					
Eastern Regional Sequence	GaK 337				Modern 140 B.P.
Mount Manning (Macintosh)					
Site 1, Ritual Paintings					A.D. 1400
Site 2, Paintings					A.D. 1750–1800

Victoria

Port Campbell (Gill)			
Geometrical microliths			3880±125
East Buchan (Gallus)			
	GaK 512	Base of Layer II	2760±100
Keilor (Gill)			
Carbonaceous lens below Cranium I	NZ 207		18000±500
Carbonaceous lens 6 ft. (1.8 m) above NZ 201	NZ 366		15000±1500

Tasmania (Reber)

South Arm	Unknown	2080±100
Dennes Point	GXO 419	5235±280
Kelly's Point (Bruny Island)	I 316	6050±350
Flat-Topped Bluff	I 317	1500±150
Marrawah	GXO 420	2600±120

* Measurement in parentheses supplied by editor

SITE AND DESCRIPTION	LABORATORY	DEPTH		LAYER	DATE
		INCHES*	CENTIMETERS*		
Marrawah	I 322				2350±150
Carlton River entrance	I 323				8700±200
Derwent River	I 324				5250±110
Huon Point	GXO 265				1860±110
Rocky Cape (South cave)	GXO 266				8120±165

* Measurement in parentheses supplied by editor

The oldest radiocarbon dates recorded in Australia to date are either west of the Great Dividing Range, as at Koonalda, Lake Menindee, and in South Australian sites in the western valleys of the range, as at Kenniff and The Tombs, or in areas such as Keilor and other Victorian sites. This trend (McCarthy 1966) indicates that man migrated across the plains of the interior where there were no real barriers to his advance, instead of moving steadily down the east coast; the oldest east coast dates are from Curracurrang and Seelands. The assemblages from coastal sites also tend to suggest that man penetrated the great Range from the west at different points and, as a result, preserved archaic stone industries in various coastal areas.

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Aust. Inst. Abor. Stud. Newsletter	*Australian Institute of Aborignal Studies Newsletter*
Aust. Nat. Hist. Jnl.	*Australian Natural History Journal*
Aust. Outdoors Mag.	*Australian Outdoors Magazine*
Aust. Terr.	*Australian Territories*
Jour. Anthrop. Soc. S. Aust.	*Journal of the Anthropological Society of South Australia*
Jour. Oriental Soc. Aust.	*Journal Oriental Society of Australia*
Pap. Proc. Roy. Soc. Tas.	*Paper & Proceedings of the Royal Society of Tasmania*
Pr. Preh. Soc.	*Proceedings of the Prehistoric Society*
Pr. Roy. Soc. Vict.	*Proceedings of the Royal Society of Victoria*
Proc. Roy. Soc. Tas.	*Proceedings of the Royal Society of Tasmania*
Rec. Aust. Mus.	*Records, Australian Museum*
Rec. S. Aust. Mus.	*Records of the South Australian Museum*
S. Aust. Nat.	*South Australian Naturalist*
Spec. Publ. W. Aust. Mus.	*Special Publication, Western Australian Museum*
Townsville Nat.	*Townsville Naturalist*
Vict. Nat.	*Victorian Naturalist*

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This very important review of Australian prehistory refers to early and modern research, the antiquity of man as revealed by excavations at Cape Martin (South Australia), Keilor (Victoria), Kenniff (Queensland), Noola, Capertee, and Menindee (New South Wales); discusses the Gambieran and Kartan and the problem of pebble tools and their affinities; the lower Murray River sites and their nomenclature; the marginal overlap of microlithic and point industries; the northern Australian assemblages; the Tule Inland and Eastern Regional Sequences, problems of correlation in South Australia and eastern Australia; recent recordings of rock art sites; McCarthy's four stages of rock art in Australia; present opinion and ancient crania—Talgai, Cohuna, Keilor, Mossgiel, Tartanga—and their relationships; Weidenreich's theory; the tri-hybrid theory; Abbie's views, Plomley's reevaluation of Tasmanian material in Europe; man and the extinct vertebrates and evidence for association; environment and ecology; Tindale's tribal and campsite maps. Golson's comments and assessments on many of the above matters highlight the nature of the problems involved and his own views on them.

Green, J. H., J. Hamis, J.W.G. Neuhauss, D.K.B. Sewell, and M. Watson

1965 University of New South Wales radiocarbon dates 1. *Radiocarbon* 7: 162–165.

Mootwingee cave (McCarthy), Gymea Bay (Megaw).

Gresser, P.E.

1963–1964 New distributional records of stone implements in New South Wales and Queensland. *Mankind* 5, 1962: 522–532; 6, 1963: 27–40; 80–87; 1964: 120–135.

1. Distribution of implement types and materials, New South Wales and Queensland. 2. Map showing location of sites referred to in text: Hughenden, northeast-central Queensland; Wingata Springs; Landsbrough Creek; Kentle Downs Station; Chiltern Hills Station; Eddington Station; Calleewa Downs; El Rita; Tooleybuc; Arrolla; MacKinlay River; Fullerton River; Winslade; Tara; Cloncurry; Almora Station; Carandotta. 3. Barco River; Amby; Mungalala Lake; Culgoa; Birrie; Bokhara River; Goodooga District; Dunlop Station; Kinchega Station; Yalcowinna

Station. 4. Cultowa and Thackambee Stations; Condobolin; Humbug Creek; Mount Morgan; Mogandale; Emu Park; Yuna Hills; Boona Range; Kimbella; Yarren Creek; Meloola; Tullamore; Rydal; Kaludabah; Dundullimul, New South Wales; general. Full description of surface collection and localities. Mention of tree carvings in New South Wales.

1965*a* Aborigine rock paintings: Kanangra Walls. *Mankind* 6: 215–217.

Site approximately 20 mi. south of Jenolan Caves; red-ochre paintings; figures of men and linear figures.

1965*b* Small campsites of the aborigines, central-west New South Wales. *Vict. Nat.* 82: 233–236.

Description of sites at Tilba, Cobar (Wongaibon people), Condobolin. Implements, ovens, water supply, diet.

Halls, C.

1965 The mystery of the Baijini. *NAM* 12: 4–5.

Discussion on origin of the Baijini people; information found in aboriginal songs, legends. Theory that they were Indian sea rovers from Gujerat, cultural comparisons.

Hamilton-Smith, E.

1966 Caves of the Chillagoe district, north Queensland. *Helictite* 4: 53–59.

Summary of observations made in April 1964. Geology, karst landforms. Reference to the cave paintings in cliff-foot caves at Mungana.

Hiatt, Betty

1965 Some aspects of the economy of the Tasmanian aborigines. Bachelor's thesis (Hons.). Sydney: University of Sydney. Tables, maps, plates.

Aspects of economy directly related to the food quest. History of contact in Tasmania. One chapter on Australian aborigines: relationship between economy and environment, movement of people, size of groups, diet, equipment, religion, and division of labor. Detailed account of Tasmanian natives: diet, food procuring methods, equipment, and division of labor; population distribution and the size and movement of groups. Evidence of prehistoric observation: map shows quarries, middens, carvings, occupied caves and shelters, skeletal remains, and stone arrangements that have been recorded.

Hossfeld, P.S.

1965 Patination or weathering? *Mankind* 6: 269–274.

Explanation of terms, surface phenomena. Archaeologists must reach agreement on the definitions and meanings of the terms employed.

1966 Antiquity of man in Australia. In *Aboriginal man in south and central Australia,* Part 1, 59–95.

Origin, oscillations of sea level, climatic changes. Tasmanoids, Australoids: Australian skulls, evidence obtained from artifacts, petroglyphs, and pictographs from areas such as coastal regions of New South Wales and River Murray Cliffs and Flinders Ranges of South Australia. Route of migration, reconstruction of dispersal routes, summary of sequence of events. Evidence of antiquity from blood grouping. Weathering and patination of work rocks—human fossil remains and occupation sites. Radiocarbon datings. List of references.

Johnson, J.E.

1964 Observations on some aboriginal campsites in South Australia and adjoining states. Part 2. *Mankind* 6: 154–181.

Sites 22-47E in Mann Range, Tomkinson Range, and Bidjandjara plateau; records *woakwine, bondi,* and *pirri* points, geometrical microliths, *tula* and slugs, and other adze flakes, kidney-adzes, *jimari* knife, *tjunggani* muller, *wardulka* hand pick, flat mullers, throwing stone, horsehoof cores, *arapia,* choppers, scrapers, *sumatra*-type pebble choppers, millstones; proposed date of Australite fall, ceremonial sites, geological history and association with implement sites.

Jones, R.

1964 Archaeological fieldwork in Tasmania. *Antiquity* 38: 305–306.

Many sites examined along east and west coasts, some inland sites, and excavations made at Sister's Creek, Rocky Cape, Bay of Fires, and West Point yielded large quantities of stone implements and faunal remains, also bone implements. Human cremations throughout deposit 7 ft. deep at West Point. A stone path-like arrangement, with a second one below it, found at the Bay of Fires.

1965*a* Archaeological reconnaissance in Tasmania, summer, 1963–1964. *O* 35: 191–201.

Detailed reports of excavations and finds at Sister's Creek, stone arrangement at the Bay of Fires, rock-shelter at Oatlands, West Point midden. Dietary evidence and caroon date of 6050±88 B.P. Sister's Creek.

1965*b* Excavations on a stone arrangement in Tasmania. *M* 65: 75–79.
Excavations 1963–1964, midden at the Bay of Fires. Description and dimensions of arrangement. Reconstruction of the probable sequence of building.

1965*c* Observations on the geomorphology of a coastal cave near Wynyard, Tasmania. *Pap. Proc. Roy. Soc. Tas.* 99: 15–16.
Sister's Creek cave: briefly states that aborigines may have occupied the site. Records an old sea level 100 ft. above present level.

KABO, V.R.

1964 On the ethnic origin of the Australian aborigines. Paper presented at the 7th Meeting of International Congress of Anthropological and Ethnological Sciences. Moscow: Nauka Publishing House. 16 pp. Processed.
Radiocarbon dating, archaeological cultures, distribution of cultures, general review.

KENNEDY, K.

1966 Some aboriginal stone implements from the Townsville Town Common. *Townsville Nat.* 5: 5–9.
Collection of artifacts by author from two middens, examples now in local museum; description and uses of ground-edge axe heads, axe blanks, hammer stones, anvil stones, cores, flake knives, skinning knives, scrapers, quartz scrapers, millstones.

LANE, E.A., and A.M. RICHARDS

1966 Hand painting in caves, with special reference to aboriginal hand stencils from caves on the Nullarbor Plain, southern Australia. *Helictite* 4: 33–50.
Discussion and comparison of handpaintings found in caves in France, Spain, and Australia, specifically caves of the Nullarbor Plain (Murrawijinie, Abraturrie, Koomooloobooka, Knowles). Brief survey of the discovery of Australian rock paintings in the nineteenth century. Methods and materials used in hand paintings; meaning of this type of aboriginal art. Mutilation of hands reflected in the paintings: medical or deliberate reasons. Magical role in Bard and Worora tribes in Kimberleys. Short description of paintings in Nullarbor caves. List of references.

LOUGH, J.C.

1965 (Letter to Editor) *Aust. Outdoors Mag.* 33, 14, 74.
Commenting on article by Michael Barnes, "Riddle of our aboriginal carvings."

MCBRYDE, ISABEL

1964*a* Archaeology in Australia: some recent developments. *Record* (Armidale) 6: 5–7. Plates.
Survey of expeditions and work accomplished, carbon dates.

1964*b* The linear engravings of the Clarence Valley, northern New South Wales. *O* 34: 201–210.
Abraded grooves in rows and sets, u-within-u designs, S figure and crown-like figures.

1964*c* Rock art of the Australian aborigines in northern New South Wales: a survey of discoveries in the New England district. *Illustrated London News,* January 4: 14–15.
Hall's Creek and Moonbi. Description and map of sites and paintings, consisting of small men, bora ground designs, linear designs, tracks, stick figures, goannas in red.

1965*a* Radiocarbon dates for archaeological sites in the Clarence Valley, northern New South Wales. *O* 35: 260–266.
Location of four sites. Types of implements. Middens excavations 1963 and 1964, burial sites, description of method of burial.

1965*b* Radiocarbon dates for northern New South Wales. *AJS* 27: 260–261.
Three series of samples from Clarence Valley area dated in 1964. Whiteman's Creek, Wombah Midden and Blaxland Flat.

MCCARTHY, F.D.

1964*a* The archaeology of the Capertee Valley, New South Wales. *AJS.* 26: 197–246.
Topography and environment, Sites 1–6: stratification, range of implements, manganese and iron staining, progressive development of stone working, differential diffusion, Bondaian and Capertian phases, fauna, cave paintings.

1964*b* The art of the rockfaces. In *Australian aboriginal art,* R.M. Berndt, ed.: 33–43.
Phases of abraded grooves, outlines, linear and pecked intaglios and descriptions of major sites and motifs in rock engravings: major areas of paintings, methods and pigments; New South Wales coastal sequence; Victoria and Queensland paintings; Arnhem Land, Kimberleys, Northern Territory linear motifs in rock engravings and paintings, naturalistic motifs, distribution.

1964*c* Australian aboriginal art. *Australia Today,* 12 October 1964: 44–49, 80–82.
Discusses types of art, especially in Arnhem Land, Queensland, Kimberleys, central Australia. Part played by art in ceremonies, myths.

1964*d* Island art galleries. *W* 30: 38–39.
Depuch Island engravings and Chasm Island cave paintings.

1965*a* The aboriginal past: archaeological and material equipment. In *Aboriginal man in Australia,* R. and C. Berndt, eds.: 71–100.
Survey of contributions to archaeology and material culture, excavations, typology, chronology, techniques. List of radiocarbon dates so far recorded. Rock art phases, diffusion of cultures and designs, extra Australian relationships, areas of local variation, trade, stone arrangements.

1965*b* The emu and the aborigines. *Aust. Nat. Hist. Jnl.* 15: 16–21.
Hunting the emu, method of cooking, Kurdaitja shoes made from feathers, mythology and ceremonies relating to emu, and the emu as art motif.

1965*c* The uses of shells by primitive man. *Aust. Nat. Hist. Jnl.* 15: 70–74.
Utensils, ornaments, trade and gift exchange, decorative material, and central feature of magic.

1965*d* Anthropological research in Northern Territory. Roneoed. Australian Institute of Aboriginal Studies. 22 pp.
Record of research in Aboriginal Studies at all missions and settlements.

1966*a* The Australian Institute of Aboriginal Studies. *Aus. Nat. Hist. Jnl.* 15: 194–196.
Includes summary of investigations of prehistory of Australia by Institute.

1966*b* A possible trend in radiocarbon dates in Australia. *Aust. Inst. Abor. Stud. Newsletter 2: 27.*
The most ancient dates are west of the Great Dividing Range, a fact which indicates that man migrated across the plains of the interior prior to the arid period.

1966*c* Preliminary report on overseas collections of Australian aboriginal material culture. *Aust. Inst. Abor. Stud. Newsletter* 2: 31–39.
Discussion and tables of holdings of human skeletons and crania, stone implements, and material culture in museums in Great Britain, Europe, United States of America, Canada, Central and South America, and the Pacific area.

1966*d* Anthropological research by laymen. *Aust. Inst. Abor. Stud. Newsletter* 2: 40–41.
Fieldwork to be done.

1966*f* The prehistory of Australia. *Aust. Terr.* 6: 2–12.
Early research, Spencer's "materialist" claim; variety of implements, collections and gaps in them; Tula Inland and Eastern Regional Sequences; northern Australian assemblages; links between northern and southern assemblages; earlv, middle, and late periods of Australian prehistory: advances in stone implement types from early to late assemblages; probable migration of aborigines across the interior plains; phases of rock engravings and paintings; wealth of sites in Australia.

MACINTOSH, N.W.G.

1965*a* Dingo and horned anthropomorph in an aboriginal rock shelter. *O* 36: 85–101.
Detailed account of three shelters on southeast slopes of Moung Manning, New South Wales. Floor deposits, description of paintings (styles, motifs, techniques) and carbon dates of A.D. 1400 and A.D. 1750–1800. Comparison with paintings in Wyong Creek shelter. Excavation, types of implements. Symbolic interpretation.

1965*b* The physical aspect of man in Australia. In *Aboriginal man in Australia,* R. and C. Berndt, eds.: 29–70.
Survey of Australian fossil human material and ancestral background, migration routes and navigation of man to Australia; comparison of Keilor, Talgai, and Cohuna craniums, the Mossgiel skeleton, Tartangan remains. Blood groups, dermatoglyphs, craniology, metrical, and morphological physical comparisons of living populations.

MACINTOSH, N.W.G., and B.G.W. BARKER

1965 The osteology of aboriginal man in Tasmania. *Oceania Mon.* 12. 72 pp., plates.
Review and assessment of Tasmanian osteology in relation to archaeology and its application to the problem of Tasmanian origin and antiquity. Description of human tooth found at West Point by Rhys Jones: indication of cremation. Survey of early material and review of theories.

MASSOLA, A.

1964*a* The grinding rock at Earlston. *Vict. Nat.* 81: 109–112.

1964*b* Queensland harpoons and their distribution. *Mem. Nat. Mus.* 26: 201–207.
Traces diffusion of different types from Torres Straits into north Queensland and Arnhem Land. Distribution of pointed bone harpoons.

1964*c* Records of new shelters in the Black Range. *Vict. Nat.* 81: 15–17.
Four shelters containing red drawings of linear designs: bird tracks, pubic apron, crosses, bird tracks within circle, concentric circles, radiate, and stencilled human hands.

1964*d* Victorian Range shelters. *Vict. Nat.* 81: 169–176.

Greatest known concentration of paintings in Victoria, in rock-shelters on Cultivation Creek water-shed, in Billywing area of the Victorian Range, Western Grampians. Lists fourteen sites, giving distinguishing name and number, symbols, color, date of discovery, and name of recorder. Full account of paintings, myths behind them, totem centers.

1965 The Grinding rocks at Boisdale. *Vict. Nat.* 82: 9–13.

First indestructable antiquity found in Gippsland. Brief history of tribe and tribal fights between Kurnai and Omeo natives. Full description of rocks.

1966 Notes on aboriginal antiquities of the Colac District. *Vict. Nat.* 83: 125–136.

Early contacts; intertribal fights among the Coladjins, Woocownos, Bulloker, and Jarcoorts, settled by corroboree and exchanging of wives. Excavations at (1) Bleak House: implements discovered; (2) Ross's Point; (3) Corunum; (4) Mingawalla; (5) Foxhow. Campsites discovered at Irrewilippe. Barongarook West, Chapple Vale. Quarry discovered at Gellibrand. Fireplaces, "mirnyongs"; and detailed description of Dean's Creek site. Account of Guanga "heaps" and initiation.

MATHEW, J.

1964 Some rock paintings and shelters of the McArthur River, Northern Territory. *Mankind* 6: 147–154.

Eight sites described 43 mi. south of Borroloola. Stencils, outlines of human-beings and animals, linear figures, silhouettes, bichromes. Biface and uniface quartzite points collected on a surface site at Top Crossing.

MATTHEWS. J.M.

1966 The Hoabinhien affinities of some Australian assemblages. *APAO* 1: 5–22.

Hoabinhien of Southeast Asia and Indonesia, Kartan of South Australia, uniface pebble industries in New South Wales, biface implements and ground-edge axes; metrical analysis of Kangaroo Island pebble tools, Wakefield River horsehoof and artifacts made on weathered blocks; Yamba and Seeland pebble tools in Australia, and Sai Yok, Thailand, pebble tools.

MEGAW, J.V.S.

1965 Excavations in the Royal National Park, New South Wales: a first series of radiocarbon dates from the Sydney district. *O* 35: 202–207.

Tripartite division of Curracurrang assemblages agrees with Eastern Regional Sequence, carbon dates for latter sites, adds fishhook file to Eloueran phase comparison with sites elsewhere, absence of *pirri*, rejects Tindale's inclusion of Bondaian phase in Mudukian culture, mentions Gymea Bay assemblage of files, fabricators, *bondi* points with burial.

1966*a* Report on excavations in the South Sydney district 1964–1965. *Aust. Inst. Abor. Stud. Newsletter* 2: 4–15.

Extension of the excavations of sites at Curracurrang, near Sydney, where a tripartite series of assemblages are comparable with McCarthy's Eloueran-Bondaian-Capertian Eastern Regional Sequence; frequency of implement types in main-shelter from which I. Glover's metrical analysis confirms *elouera* type (probably late occurrence) but questions division of backed blades. Radiocarbon dates 840±90 B.P. to 2360±90 B.P. for Bondaian-phase skeletal material; six other shelters yielded Eloueran-Bondaian implements; re-excavation and reoccupation by aborigines are features of sites.

1966*b* The excavation of the aboriginal rock-shelter on Gymea Bay, Port Hacking, New South Wales, with an analysis of the stone industry by R.V.S. Wright. *APAO* 1: 23–50.

Shell midden deposit yielded two human skeletons and an assemblage of small, squat flakes; implement types include *bondi* point, *elouera*, burin, *burren* adze slug (?), flake fabricator (predominant type), hammerstones, ground-edge axe fragments, fishhook files, bone *muduk*, and a thong fragment of indeterminate material. Evidence supports use of *muduk* as spear barb and point, and not as a fish gorge. History of contact and settlement; economy of area; comparison with other southeast Australian sites; date of 1220±55 B.P. for skeleton 2—specimens in University Museum of Archaeology and Ethnology, Cambridge; Hunterian Museum, Glasgow; and British Museum; earliest ethnographic material extant from Sydney district.

MEGGITT, M.J.

1965 The association between Australian aborigines and dingoes. In *Man, culture and animals: the role of animals in human ecological adjustments*, 7–26. American Association for the Advancement of Science.

Theory of origin of dingo, its adaptability, seasonal movements, adjustment of Aborigines hunting itineraries accordingly (Walpiri). Dingo flesh occasionally eaten by natives. Usefulness as hunting aid. Survey of early writers' opinions. Evidence supports J.F. Down's hypothesis.

MICHA, F.G.

1965 Zur Geschichte der Australischen Eingeborenen. *Saeculum* XVI: 317–342.

Summary of aboriginal culture; rejects Kulturkreise theory; ahistoric attitude of aborigines to new ideas; myths in ethnohistory, their origin and antiquity; migration routes in Wurm glacial period; ancient linguistic development; human biology; rejects Tindale's application of lower Murray culture sequence to continent and Negrito origin of Tartangan; accepts Tula and Eastern Regional Sequences; recent excavations; trade and diffusion; extra-Australian influences.

MOORE, D.R.

1965 The Tribes of Cape York: a reconstruction of their way of life and a consideration of its relevance to the archaeological problems of the area. Typescript. Thesis for Department of Anthropology, University of Sydney. 87 pp., illus., maps.

Codifies information concerning social organization, material culture, ceremonial life, and contact with Torres Straits islanders for Djagaraga, Jadhaigana, Anggamudi, and Kaura'reg. Discusses archaeological work required in the area and relates it to the general picture in Australia and New Guinea.

MOUNTFORD, C.P.

1964 The art of Arnhem Land. In *Australian aboriginal art*, R.M. Berndt, ed.: 20–32. Color plates.

History and distribution of bark painting in Australia and Tasmania, techniques, northeast and west Arnhem Land, Groote Island, Melville Island, and Wandjina styles, carved human figures.

1965*a* Aboriginal rock poundings on Gallery Hill, northwest Australia. *Rec. S. Aust. Mus.* 15: 89–107.

About 200 mi. southeast of Port Hedland. Description of and techniques used in producing rock poundings, origin and meanings, methods of recording. Comparison of poundings and pecked engravings in Australia.

1965*b* *Ayers Rock; its people, their beliefs, and their art.* Sydney: Angus & Robertson. Honolulu: East West Center Press.

Ecology of Ayers Rock area; effect of environment on aborigines' life and thought. Part I: topography, climate, fauna and flora; Pitjandjara tribe's implements, organization. Part II: beliefs and myths, linking of the physical features of the rock with the legends. Part III: rock engravings; ii: art of sacred objects (Kulpidji); iii: art of Ayers caves.

MOUNTFORD, C.P., and R. EDWARDS

1962 Aboriginal rock engravings of extinct creatures. *M* 62: 174.

1964 Rock engravings in the Red Gorge, Deception Creek, northern South Australia. *Anthropos* 59: 849–859.

Origin and age of markings, designs figured, technique and motifs discussed.

MULVANEY, D.J.

1964*a* Australian archaeology, 1929–1964: problems and policies. *AJS* 27: 39–44.

Survey of excavations at Oenpelli, Tandandjal, Willeroo, Kenniff, The Tombs, Talgai, Menindee, Lapstone Creek, Devon Downs, Fromm's Landing, Kangaroo Island, Keilor, Cape Otway, review of theories and claims in Australian prehistory, origin and antiquity of aborigines, diffusion, need for interdisciplinary research, future work.

1964*b* Prehistory of the Basalt Plains. *Pr. Roy. Soc. Vict.* 77: 427–432.

Surface collections of microliths, *bondi* points, axes; stone quarries; coastal middens; basalt walled huts; Lake Wongan stone arrangements; Lake Condah fish trap; Mirrnyong ash ovens; trade; vulcanism; Pleistocene occupation by man; Buninyong bone; Warrnambool footprints; Pejark marsh, and Lake Colongulac relics.

1964*c* The Pleistocene colonization of Australia. *Antiquity* 38: 263–267.

Summarizes positive evidence for the peopling of the continent in the Pleistocene era. Results in archaeology during the past five years. Excavations at Fromm's Landing, Keilor, Menindee, Noola, Talgai, Kenniff cave, and Katherine. Mentions results of carbon dating.

1965*a* Aborigines of Victoria. In *Victoria Year Book* 79: 10 pp. Prehistoric culture, excavations.

1965*b* Beche-de-mer, Aborigines and Australian history. Canberra. Typescript, 16 pp., map.

Survey of what is known on early trading between Arnhem Land people and Malayans and Macassans. Brief report on recent archaeological fieldwork, external influence on material culture. Traces of contact—potsherds, square gin-bottle fragments, ash, tamarind trees.

1966 The prehistory of the Australian aborigines. *SA* 214: 84–93.

Physiography of continent; underlying unity of cultural pattern; environment and culture; lower Murray excavations and comparison of results; Kenniff results and non-hafted and hafted division, latter at Ingaladdi, Capertee, Seelands, Curracurrang, Laura, and Noola sites; Fourth Millenium B.C., a critical one in Australian prehistory; classification problems; Keilor finds; man's arrival in Pleistocene; dingo; racial origins of the Aborigines and Tasmanians; future work in New Guinea essential to understanding of Australian prehistory.

Mulvaney, D.J., and Joyce, E.B.

1965 Archaeological and geomorphological investigations on the Mount Moffatt Station, Queensland. *Pr. Preh. Soc.* 31: 147–212.

History and geography of area, Kenniff cave soil analysis, non-occupation for 5,000-year period of aridity; quartzite quarry; similarities with other sites; deposit 11 ft. deep, 800 artifacts and 22,000 waste flakes divided into long non-hafted period of 11,000 years of hand-held scrapers, and hafted period of 2,000 years consisting of microlithic hafted phase and a late hafted phase in which geometrics, *tula, pirri, bondi* points, *arapia, juan* knives, *elouera,* burin, ground-edge axe flakes and millstone occurred. Tombs cave assemblage of *tula, pirri,* microliths. Radiocarbon dates. Stencil art includes full human figure, outlines, and silhouette. Cathedral cave, Carnarvon, assemblage, and way of life similar.

Mulvaney, D.J., G.H. Lawton, and C.R. Twidale

1964 Archaeological excavation of rock shelter No. 6, Fromm's Landing, South Australia. *Proc. Roy. Soc. Vic.* 77: 479–516.

The excavation and related features; sediments; archaeological discoveries; artifacts; human burials; organic remains; flood deposit 1,100 years old; dingo skeleton 3,000 years old; Thylacine tooth; specialist reports by Macintosh, Mahoney, Wakefield.

National Physical Laboratory

1965 Radiocarbon measurements III. *Radiocarbon* 7: 156–161.

Dates from Fromm's Landing 9, South Australia. The Tombs and Kenniff cave series, Queensland, (Mulvaney).

North, W.I.

1964 Aboriginal factory sites at Moonee Beach, New South Wales. *Rec. S. Aust. Mus.* 14: 633–642.

Uniface pebble choppers, edge-ground axes, *Moonee* adze proposed name.

Parsons, A.C.

1964 The aboriginal stone implement industry on Yorke Peninsula. *Jour. Anthrop. Soc. S. Aust.* 2: 2–3.

New sites found; description of implements.

Pilling, A.R.

1965 Review: Australian aboriginal studies: a symposium presented at the 1961 Research Conference (W.E.H. Stanner and H. Sheils).

Plomley, N.J.B., ed.

1966 Friendly mission; the Tasmanian journals and papers of George Augustus Robinson, 1829–1834. Hobart: Tasmanian Historical Research Association. 1087 pp.

Ponosov, V.V.

1965 Results of an Archaeological survey of the southern region of Moreton Bay and of Moreton Island, 1963–1964, Brisbane. Processed report from Australian Institute of Aboriginal Studies 138: 77 pp., maps, plates.

General outline and description of region, location of middens on ocean shore, stone implements found, shells in cultural layers; Moreton, North and South Stradbroke, Macleay, Russell, Peel, Lamb, Coochiendudlo, Perulpa Islands and mainland, lower reaches of Coomera and Logan Rivers. Human skull found at Moreton Island. Full account of stone and other implements.

Preiss, K.A.

1964 Aboriginal rock paintings in the lower Mount Lofty Ranges, South Australia: four new sites described. *S. Aust. Nat.* 39: 5–12.

South Rockleigh, North Rockleigh, Palmer, and Palmer West shelters. Gives full description of paintings and discusses probable origin and methods of preserving them.

Radiocarbon Dates

1964 Australia. *Radiocarbon* 6. 27: 206.

Fromm's Landing series, South Australia (Mulvaney); Noola, Lake Menindee, Cape Northumberland, and Shellharbour (N.B. Tindale).

Rao, P.D.P.

1966 Squatting facets on the talus and tibia of Australian aborigines. *APAO* I: 51–56.

Reports 238 tali and 234 tibiae examined and percentages given for medial and laterial extensions of the trachear surface on tali; and of lateral squatting facet on talus and tibiae.

Reay, Marie

1965 The Fink caves, Northern Territory. *Mankind* 6: 218–223.

Three galleries in McArthur River area, about 13 mi. northeast of the old McArthur homestead. Interpretation of figures, material culture in general region. Stencils, outlines, silhouettes, linear figures of animals, men, axes, wheel, green-painted hands; mentions Vanderlin Island paintings.

Reber, G.

1965 Aboriginal carbon dates from Tasmania. *Mankind* 6: 264–268.

Sample tests from ten sites in northwest and southeast Tasmania, dates from one to eight thousand years before present (1950); no sites on King Island.

Ride, W.D.L. and A. Neumann, eds.

1964 Report on the aboriginal engravings and flora and fauna of Depuch Island, Western Australia. *West. Aust. Mus. Spec. Pub.* 2. Perth. 88 pp.

History of Island, full description of engravings, sites, technique, age of engravings, excavation. Possibility of increase sites in Madudunara Territory. List of recommendations for preservation. Contributions by R.M. Berndt and I. Crawford.

Rowlands, R.J., and J.M. Rowlands

1965 Some aboriginal wells in the western desert of Australia. *Mankind* 6: 231–237.

Description, location, and aboriginal names of five wells.

Ryan, J.S., comp.

The land of Ulitarra: early records of the aborigines of the mid-north coast of New South Wales. Grafton: University of New England. 256 pp., maps.

Daily life in a seasonal environment, hunting and collecting food, types of food. Rock-shelters, paintings, typology.

Shutler, R.

1965 Radiocarbon dating in the Pacific. Carson City, Nevada. Typescript, 8 pp.

Paper presented at International C-14 and H-3 dating conference, Pullman, Washington, 7–11 June 1965. Australia mentioned in connection with earliest evidence of man based on C-14 dating. Pleistocene man at Kenniff cave with reference to affinities with stone culture of Tasmania. Lake Menindee to Keilor man references. Theory of origin and distribution of artifacts.

Sim, I.M.

1964 Aboriginal drawings near Wilton, New South Wales. *O* 35: 58–65.

Location approximately 40 mi. south of Sydney. Description of shelter, surroundings, and charcoal drawings of animals, humans, two large culture heroes, and bird.

1965 Records of the rock engravings of the Sydney district, numbers 138–145. *Mankind* 6: 275–287.

A series of groups on West Head Peninsula, Ingleside, and Lane Cove National Park recorded in scale charts.

Stivens, D.

1964 Aboriginal art. *Hemisphere* 8: 20–24.

Cave paintings, bark paintings, carved designs. Association with religious and increase ceremonies, such as Wondjinas (Kimberley district). Mythology associated with art.

Strehlow, T.G.H.

1964 The art of circle, line, and square. In *Australian aboriginal art,* R.M. Berndt, ed., 44–59.

Old religious beliefs of central Australian tribes. Totemic emblems and their motifs, ground designs. Material and colors used. Sacred patterns. Ground paintings: mythological interpretation. Bodily decoration, ritual centers, totem poles, tjuringa. Diffusion of central Australian art style and comparison with other areas. Full description of designs.

Thomas, H.F.

1964 A possible aboriginal ceremonial ground at Lake Gol Gol, New South Wales. *Mankind* 6: 105–120.

Northeast of Mildura. Ninety "frame" trees plotted and located. Purposes for which bark was cut. Ground plan similar to Banaway bora ground. Absence of definite carving on trees. Full description. Method used for making survey. Three possible explanations given of their significance. Case made out in favor of ceremonial trees.

Thomson, D.F.

1964 Some wood and stone implements of the Bindubi tribe of central Western Australia. *Pr. Preh. Soc.* 30: 400–422.

Geographical setting. Types of food, material culture, women's implements, men's implements, ecology. Full description of tools, weapons, digging sticks, etc.

1965 The land where men perish. *Hemisphere* 9: 2–7.

Study of the ecology of the aborigines of the Great Sandy Desert—the Bundibu and Pitjantjatjara tribes—campsites, food gathering and preparation, the making and uses of millstones, pounding stones, hafted chisels, handaxes, choppers, scrapers, spear and spearthrower manufacture.

1966 Papuan influences in Cape York, *Hemisphere* 10: 13–18.

Detailed description of Papuan-type flora and fauna found in Cape York. Meeting of Yintjingga tribe at estuary of Stewart River, general ecology. Shelters, seasonal nomadic habits, food gathering. Physical characteristics.

TINDALE, N.B.

1964 Radiocarbon dates of interest to Australian archaeologists. *AJS* 27: 24.

Four dates, Noola rock shelter, Lake Menindee, Cape Northumberland, Shellharbour. Account of excavations.

1965 Stone implement-making among the Nakako, Ngadadjara and Pitjandjara of the Great Western Desert. *Rec. S. Aust. Mus.* 15: 131–164.

Observations at native mining place in Mount Davies area and the making of hafted stone adzes near Gill Pinnacle. Principal stone implements made by Nakako, Ngadadjara, and Pitjandjara peoples; native names, techniques employed filmed hafted chisels, *tjimari* and *kandi* knives, gum hafting, uses; *tula* and *burren* slugs; materials used. General discussion on Australian archaeological implement types which parallel those obtained; old specimens in Peabody and Leipzig Museums.

TREZISE, P.

1964 Aboriginal rock paintings of Cape York Peninsula. *Wildlife in Australia* 1: 12–14.

Description of kitchen middens near Weipa; paintings at Cooktown, Laura, and Palmer River areas; subject matter, materials used.

TUGBY, D.J.

1964 (Letter to editor.) Measurements on a stone axe-head from Canberra, Australian Capital Territory. *Mankind* 6: 190–192.

Found near foot of Black Mountain. Setting up of standard codes for description of artifacts. Uses axe-head as example.

TUGBY, D., and E. TUGBY

1965 An aboriginal kitchen-midden near Caloundra, southeast Queensland. *Mankind* 6: 197–201.

Description of site, results of excavation, artifacts found. Sketch map of site.

WALKER, P.H.

1964 Soil and landscape history in the vicinity of archaeological sites at Glen Davis. New South Wales. *Rec. Aust. Mus.* 26: 247–264.

Physiography, deposits, soil analysis, soil history and chronology, evidence of occupation. See also article by F.D. McCarthy in same volume.

WALSH, W.P.

1964 Unexplained markings in Kintore and Cutta Cutta caves, Northern Territory. *Helictite* 2: 83–91.

Description of caves near Katherine. Possible origin of incised markings in soft rock surfaces and mud coatings. Also in Princess Margaret Rose Cave, South Australia.

WEATHERSBEE, R.D.J.

1964 Aboriginal stone implements: Dulkaninna and Blaze's Well, South Australia. *Jour. Anthrop. Soc. S. Aust.* 2: 2–3.

Description of *pirris,* scrapers, and a core at Dulkaninna and tula adze-flakes from Blaze's Well found in August 1963.

1966 A collection of implements after top soil disturbance. *Jour. Anthrop. Soc. S. Aust.* 4: 5–8.

Implements found at campsite in Morphet Vale. List gives classification, number, percent of total.

WRIGHT, B.J.

1964 Some aboriginal rock engravings in the Roebourne-Hammersley Range area, Western Australia. *West. Aust. Nat.* 9: 97–118.

Engraving technique, discussion on antiquity, interpretation. Sixteen petroglyph sites mapped, described: Madabarena Pool, Fisher Hill, Table Hill, Pope's Nose, Drunguna Creek, Hooley Creek, Gap Well, Robinson Creek, Cheedy Well, Powder Creek, Yandagoodgie Rock Hole, Horse Spring, Horse Spring Pool, Hammersley sites 1,2,3.

WRIGHT, R.V.S.
1964 Probing Cape York's past. *Hemisphere* 8: 12–16.
Fieldwork 1963, based at Laura and Weipa. Notes on rock art and surface artifacts collected, results of excavation of shelter. Survey of early writings on shell mounds on estuaries of Hay and Embley rivers near Weipa. Detailed description of middens, investigation into origin. Excavation of mounds, finding of shell used for source of red ochre and implements.

YAMAGUCHI, B.
1966 A comparative osteological study of Ainu and Australian aboriginal material: a preliminary report. *Aust. Inst. Abor. Stud. Newsletter* 2: 16–19.
Defines Australoid and Ainoid types as extremes with an intermediate group in the Australian crania examined; maps their distribution and describes an occipital mutilation of the foramen magnum in both Australian and Ainu skulls.

ZEUNER, F.E.
1964 *Dating the past: an introduction to geochronology.* 4 ed. London: Methuen. 536 pp., diagrams, plates.
Evidence for Pleistocene man in Australia: pp. 280–281. Radiocarbon date for Keilor skull, description of terrace where skull was found.

Book Reviews

Hawaiian Archaeology; Trails: From Steppingstones to Kerbstones. Russell A. Apple. Honolulu: Bishop Museum Special Publication No. 53, 1965. ix, 73 pp., 37 figs., 53-item bibliog., paper, U.S. $3.00.

Reviewed by T. STELL NEWMAN, *University of Hawaii*

Native trails form a subject area often overlooked by students of Polynesian prehistory. Apple notes in his volume that information on trails, their uses, types, construction, and the role they played in the local culture received only passing notice in early accounts of Hawaii.

As a result, Apple not only found it necessary to do extensive field surveys but also to search carefully the early literature for scattered references to Hawaiian trails.

Four basic trail types were delineated by the author that he labelled A, B, C, and D. Type A trails he found to be simple footpaths that closely followed the coastline. They were the earliest type. Type B trails were wider than A trails and were built in much straighter lines that tended to be inland of Type A footpaths. In addition, Type B trails were constructed with kerbstones lining each side. An intermediate type labelled AB was made by the addition of kerbstones to existing Type A trails. Apple correlates the change in trail types to the changing socioeconomic conditions after Caucasian contact, especially to the introduction of the horse, which prompted the incorporation of kerbstones. Type C trails were still horse paths with guiding kerbstones, but were wide enough to allow simultaneous use by two horses. This trail type was also straighter than the other two discussed and tended to bypass many coastal settlements, having been built still further inland. Type D trails were modifications of Type C trails made by widening and realigning the trails for wheeled vehicles.

Because of the scattered references to trails, Apple is forced to produce extensive documentation for his dates marking the beginning of each trail type: Type A—prehistoric to 1819; Type B—1820 to 1840 (including "AB"); Type C—1841 to 1918; and Type D—1919 to the present. This is the only tedious portion in an otherwise lively volume rich in Hawaiian folklore.

An ancillary dating method might have been used that perhaps could set the scope for additional research. Dating could be based on trails obliterated by dated lava flows. Thus, one could say with certainty that trails so covered were built prior to the flow date; trails built over the flow would be subsequent to the flow date.

Dated lava flows are to be found throughout the island of Hawaii except for the Kohala, Hamakua, and Hilo districts. I would suggest checking trails at the 1750 flow near Kaimu Beach (Puna), the 1801 flows at Kaupulehu and Keahole Point (North Kona), the 1840 flow near Honolulu (Puna), the 1859 flow southwest of Puako (North Kona), the 1868 and 1887 flows between Pohue Bay and South Point (Ka'u), and the 1919 and 1926 flows slightly north of Milolii (South Kona).

My only criticism of the monograph would be (1) the rather dull documentation of how many shovels were purchased by whom and when to illustrate road maintenance and inferential datings, and (2) the broadness of the title when the scope is only the island of Hawaii, and the main emphasis upon the Honaunau area.

These criticisms, however, do not significantly detract from Apple's contribution of time, scholarly research, skilled analysis, and colorful writing style to the reader's greater appreciation of Hawaiian prehistory.

The Iron Age in India. N. R. Banerjee. Delhi: Munshiram Manoharlal. 264 pp., 23 figs., 6 tables, Rs. 35.00.

Reviewed by C. C. LAMBERG-KARLOVSKY, *Harvard University*

This book contains in summary form a great wealth of information on the cultural phases of painted grayware and the succeeding black polished ceramics of northern India; the cairn-burials of the Irano-Pakistan borderlands; the megaliths of south India; and other less well-known chalcolithic cultures of western India and the northern Deccan. The post-Harappan cultures of the northwest of the Indo-Pakistan subcontinent, i.e. Jhukar, Jhangar, Cemetery H, Londo ware, the Banasian culture, Trihni ware, etc. are also given full summaries. Review of the above cultures are undertaken for the expressed view of illuminating two main points: (1) the date of introduction and cultural associations of the earliest iron users in India and (2) the date and identity of the first Aryans in India. It is most unlikely that in a book that attempts to summarize both the archaeological and relevant literary evidences for this critical period, ca. 1200–200 B.C., that any single reviewer would agree with the many theories and hypotheses put forward by the author. Few scholars would disagree with the author's disclaimer of the Harappan civilization as the handiwork of Aryans. The suggestion of lowering the date of Harappan decline to 1200 B.C., initially suggested by Fairservis and reviewed here by Banerjee, is wholly unacceptable. The author follows the date of 2500–1500 B.C. for the duration of the Indus civilization. Recent archaeological work, supported by radiocarbon dating, suggests a span of 2300–1750 B.C. for the Harappan culture.

The author suggests that the defeat of the Hittites (in whom he unconvincingly finds the development of a Rigvedic way of life) by the Thraco-Phrygians, ca. 1190 B.C., set "in motion a colossal exodus of Indo-European people in all directions." In support of this daring hypothesis, the author cites the material remains of cultures involved in this movement that are either comparable or of connected time scale, i.e. Sialk VA and VIB, Luristan, and Hissar IIIC. The material remains of these cultures are, however, neither comparable nor of a connected time scale. Hissar IIIC precedes Sialk VA by almost half a millennium and the material content of Sialk VA and Sialk VIB—typologically distinct from each other—are introduced by a gap in the sequence at Sialk. The author's attempt to compare the Giyan I graves, termed "Luristan type," with those of Cemetery B at Sialk ignores the fact that they are separated chronologically by approximately four hundred years. The author's high date for Sialk B, ca. 1200–1000 B.C., is important in upholding the general thesis of Aryan relations between India and Iran at this time. This early date is, however, totally unacceptable. The numerous ceramic parallels between Sialk B, Persian Village I, Ziwiyeh, as well as the sixth century, parallels for Sialk iron bits with those from the Kuban, Dnieper, and Kelermes (dated to 600–575 B.C.) strongly suggest a terminal date for Sialk B in the middle of the seventh century. The reduction of this date substantially alters the connections seen by the author during this period. Following De Cardi, Banerjee equates the Londo ware of Baluchistan with the pottery characteristic of Sialk VIB.

It is necessary to point out the high level of conjecture in many of the author's statements, not only when he is dealing with archaeological data but also with literary evidences. Thus, literary evidence on Pradyota is derived mostly from the accounts in the Purānas and Buddhist literature. The author equips Pradyota with steel weapons, believing a superior weapon must have been responsible for his many successes against enemies; later in the text, however, he equips these same enemies with steel weapons. This inherent contradiction is lost in making his point that steel was quite well known by the sixth century B.C. Evidence for the existence of steel in the sixth century from direct literary texts or archaeology is conspicuously absent. The author's uses of literary sources are not always convincing, but they are highly suggestive.

Banerjee convincingly argues for the identification of the Aryans as the bearers of the painted grayware tradition. The earliest iron in India is found associated with painted grayware. The painted grayware cannot, however, be derived from outside India; it appears to have an indigenous development. The author resolves this problem by having the incoming Aryans adopt painted grayware from the makers of the Shahi Tump cometery, who with other unnamed tribal groups shared in the Aryan invasion of India—a most unsatisfactory chain of events. The author also attempts to place the "ochre-colored pottery" into proper context and is appropriately cautious in relating it to the Ganges copper "hoards." The megalithic builders of south India are plausibly viewed as Dravidians. Banerjee's summary of the views of many scholars on megalithism painted grayware, the advent of iron in the Near East, copper hoards and the Aryans, as well as the up-to-date review of all archaeological sites bearing on the Iron Age of India make this an important book for reference and future research. Unfortunately, the author's own views are often confused by contradictions in the text. His ready willingness to compare typologically similar objects separated in time and space allows for some confusion and misleading interpretations, and the more than necessary errors of fact necessitate that the book be used with appropriate caution. This book points to the need for more extensive horizontal excavation and problem oriented research. Whether the reader agrees or disagrees with Banerjee's many views, he will carry away a great deal in the reading of this book that is new, original, and worthwhile.

Pervobytnoe proshloe V'etnama [The primitive past of Vietnam]. P.I. Boriskovskii. "Nauka," Moscow-Leningrad, 1966. 184 pp., 46 illus.

Reviewed by CHESTER S. CHARD, *University of Wisconsin*

The book is a survey of the Stone Age archaeology of the former Indo-China in the setting of Southeast Asia, based on a lecture course given by the author at Hanoi University in 1960–1961, supplemented by fieldwork and studies on the scene. Inevitably, the bulk of the information is from North Vietnam. The author, who is the senior palaeolithic specialist in the USSR, spent thirteen months in Vietnam during the period 1960–1963 and played an important part in training the new generation of Hanoi archaeologists.

Chapters cover: geography and environment past and present; an historical sketch of Stone Age archaeology in the area to date; the problems of the Southeast Asian Palaeolithic and the new site of Mount Do; the Mesolithic (Hoabinhian); the Early Neolithic (Bacsonian, and Quynh-van shell midden); the Middle Neolithic (Da-but shell midden and Dong-khoi workshop); the Late Neolithic (Bau Tro shell midden, Hong-ha River delta sites, Somronsen); and problems of ancient ethnic history. There is a table (p. 164) giving the author's proposed chronology of the Stone Age and a very extensive bibliography.

New Light on Prehistoric China. Chêng Tê-k'un. (Supplement to Volume I of *Archaeology in China*). Cambridge: W. Heffer & Sons; and Toronto: University of Toronto Press, 1966. viii, 55 pp., bibliog., 25 figs., 1 chart, Chinese characters in text, index. U.S. $5.00 (30s).

Reviewed by KWANG-CHIH CHANG, *Yale University*

Archaeological activities in China since 1950 have been ever increasing, and the accumulaton of new materials places a constant demand upon the archaeologist to rethink and, when necessary, revise his conclusions. *Prehistoric China,* by Tê-k'un Chêng (now reader in Far Eastern Art and Archaeology at the University of Cambridge), was in 1959 one of the first syntheses (in any language) of the new materials. When the book became dated, as any such book inevitably must as new discoveries are made and new studies are undertaken, it was necessary for Chêng either to drastically revise his *Prehistoric China* or to present a supplementary volume to include the new information. Chêng chose the latter alternative—to the delight of the reader whose treasured copy of *Prehistoric China* is now only supplemented, not replaced.

In six short but data-packed chapters, Chêng describes what new discoveries have been made and what new interpretations become necessary for each of the following six periods: Pre-Palaeolithic (pp. 1–2); Lower Palaeolithic (pp. 3–6); Middle Palaeolithic (pp. 7–8); Late Palaeolithic (pp. 9–13); Mesolithic and Early Neolithic (pp. 14–15); and Late Neolithic (pp. 16–38). In a lucid, final chapter, Chêng concisely summarizes the current knowledge of the "cultural growth in prehistoric China" (pp. 39–41).

Prehistorians of the Far East and readers of *Asian Perspectives* will find *New Light* an indispensable volume for their personal libraries. The new material on *Pithecanthropus* and the palaeolithic industries in Shansi and Shensi, the new alignment of the various neolithic cultures and phases in the Yellow River Valley, and the summaries of a large series of neolithic assemblages throughout the Yangtze Valley and the southeastern coast are of particular interest. This reviewer has only two items of complaint: Some of the absolute dates in the chart (p. 41) are at unexplained variance with the commonly used dates for pleistocene subdivisions, and the transcriptions of some Chinese characters (e.g., Êrh-ch'eng-t'ai and Ma-lan-chui) were not, like the rest, based on Mandarin pronunciation.

The Study of Shifting Cultivation. Harold C. Conklin. Washington, D.C.: Union Panamericana, Studies and Monographs VI, 1963. 185 pp., 1 fig.

Reviewed by D. E. YEN, *Bernice P. Bishop Museum, Honolulu*

The major interests of professional agriculturists in shifting cultivation by indigenous peoples have been in the improvement, often the replacement, of current farming methods. The understanding of agricultural practices, still current in the emergent societies throughout the world, has fallen to the lot of geographers and anthropologists. The approaches are different. The geographer tends to take a wide areal view, with comparisons which may produce useful definitions of agricultural systems. The cultural anthropologist, generally concentrating on the study of a single community, seeks to portray its agriculture in its economic role and in its impact on social phenomena, be it causative or resultant. When the results of comparison of such studies display variabilities that suggest a developmental sequence in a given area, the interest of the prehistorian is aroused. An example of this is the compilation, largely from anthropological sources, of traits of shifting cultivation of Highland New Guinea by the geographer Brookfield (1962).

It is in the acquisition of agricultural data that this volume makes its contribution, being virtually an ethnographer's field manual in contexts in which agriculture provides the major subsistence. The first of the book's three sections provides a clear definition of the relatively set background of ecology, in natural and cultural terms, on which a shifting cultivation cycle is enacted. The second section may lead like a sequential checklist of enquiry, and it is particularly useful for this purpose in its comprehensiveness, but its organization confers order on a confusing array of data, rendering the components of each step of a typical agricultural cycle (decisions, actions, results, and associated social activities) more amenable to analysis based on ecological background. This analysis is further aided by a cross-index by subject. The volume concludes with a full bibliography of shifting cultivation up to 1961, of worldwide coverage, evidenced by the geographical index.

Only the bibliography was revised for this reprinting of an earlier work that appeared in *Current Anthropology,* February 1961. In my opinion, an interesting follow-up would be the composition of the new categories of information that the author has undoubtedly derived from his current work with the Ifugao of Luzon. The agriculture system is not integrally shifting in Luzon, but is a combination of swidden and permanent pond fields that Conklin has called partial shifting cultivation.

In some of the contemporary anthropological literature of contention, it is rather common to see Conklin's name associated with the practitioners of ethnoscience. Thus, in his concern with data in this volume, one is not surprised to find him specifying the collection of information in terms of native categorization as well as our own. (The outcome of following such an analysis seen in his *Hanunóo Agriculture* (Conklin 1957), in which preoccupation with terminology is obvious.) In the present volume, Conklin has produced one of the best functional analyses available of a Pacific agricultural system.

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1957 *Hanunóo agriculture.* Rome, F.A.O. Forestry Development Paper 12.

Symposium on Historical, Archaeological, and Linguistic Studies on Southern China, South-East Asia, and the Hong Kong Region. F.S. Drake, gen. ed.; Wolfram Eberhard, chairman of the proceedings. Hong Kong: Hong Kong University Press, 1967. x, 325 pp., charts, illus., indexes. HK $75.

Reviewed by KWANG-CHIH CHANG, *Yale University*

In September 1961, a scientific congress was held in Hong Kong as a part of the celebrations to commemorate the Golden Jubilee of the University of Hong Kong (1911;1961). One of a total of six symposia dealing with various scientific and humanistic subjects, the "Symposium on Historical, Archaeological, and Linguistic Studies on Southern China, South-East Asia, and the Hong Kong Region" saw the presentation of fifty-six papers by forty-nine scholars from sixteen countries, including many on the staff of the Hong Kong University. Forty-five of these papers (four of them in abstract form) constitute the volume under review. These are organized into five parts, as follows.

Part I, "Archaeology and Prehistoric Migrations," consists of five papers: "Neolithic Adzes with Differentiated Butt, in South China, South-East Asia and Polynesia" (Roger Duff), "Two Pottery Traditions of Late Prehistoric Times in South-East Asia" (Wilhelm G. Solheim II), "Persistance Culturelle du Substrat Indonésien chez les Vietnamiens actuels" (Nghiêm-Thâm), "Notes on Some Complex Problems Raised by Excavations in South-East Asia" (O. Janse), and "A Survey of Prehistoric Sites in the Hong Kong Region" (S. M. Bard). Duff and Bard present important new materials, and Solheim's paper contains the first detailed characterization of the Bau-Malay pottery complex.

Part II, "Racial Groups of South China and South-East Asia, Their Languages and Migrations," contains eleven papers: "Thai Migrations" (Prince Dhaninivat), "A Study of the Miao People" (Ruey Yih-fu), "The Ethnological Problems connected with Nanchao" (Michael Blackmore), "Two Thai Manuscripts on the K'unlun Kingdom" (Kachorn Sukhabanij), "The Calendar of Lucky Days used by the Sani Tribes of Yünnan and the Cycle of Twelve Animals" (Lo Hsiang-lin), "Moso Sound and Tone Charts" (Li Lin-ts'an, Chang K'un, and Ho Ts'ai). "The Shê Settlements in the Han River Basin, Kwangtung" (Jao Tsung-i), "The Yüeh Bronze Drums, their Manufacture and Use" (Lo Hsiang-lin), "The Chuang People of South China" (Princeton Sung-shih Hsü), "The Tanka or Boat People of South China" (Ho Kê-ên), and "Wongchuk=Left, Wongma=Right? A Possible Clue to One of the Local Pre-Chinese Languages" (K. M. A. Barnett). Ethnologists of mainland Southeast Asia will find in this group of papers a considerable amount of original data as well as interesting ethnohistorical speculations.

Part III, "The Southward Expansion of the Han Chinese in Historical Times, is made up of eight papers: "Chinese Penetration to the South during the Han Period" (abstract) (Michael Loewe), "Kweichow in the Han Period" (Wang Chee-shu), "Sung Poets in Canton" (abstract) (Yoshikawa Kōjirō), "Social Mobility and Migration of South Chinese Families" (abstract) (W. Eberhard), "The Southward Expansion of Chinese Civilization and the Advancement of Learning in Kwangtung Province" (Lo Hsiang-lin), "Suzerainty over Annam. A Legal Discussion of China's Traditional Concept" (Klaus Mäding), "Cities in North and South China" (abstract) (F. W. Mote), and "The Han Chinese in Hunan under the Northern Sung Dynasty" (P. K. Yü). These papers deal with a highly significant aspect of the cultural history of South China and Southeast Asia, but the presentation of one-half of the papers in abstract form is a regrettable drawback.

Part IV has twelve papers, divided into two groups. A, "Sea Routes Between India, South-East Asia and China, and the Development of South-East Asian States, includes nine papers: "The Intellectual Atmosphere in Lingnan at the Time of the Introduction of Buddhism" (G. E. Sargent), "Notes on the Studies of Ancient Malaya" (Hsü Yün-ts'iao), "Islam in Canton in the Sung Period, Some Fragmentary Records" (Lo Hsiang-lin), "British Quest for China Trade by the Routes across Burma (1826–1876)" (Thaung Blackmore), "Some Place-Names in the South Seas in the *Yung-lo ta-tien*" (Jao Tsung-i), "Places in South-East Asia, the Middle East, and Africa Visited by Chêng Ho and his Companions, A.D. 1405–1433" (Su Chung-jen), "The *Ming shih-lu*. New Studies in South-East Asia" (L. Y. Chiu), "Sino-Javanese Relations in the Early Ming Period" (L. Y. Chiu), and "The Smuggling Trade between China and South-East Asia during the Ming Dynasty" (Chan Cheung). B, "Portuguese and English Linguistic Studies," has three papers: "Pidgin English and Portuguese" (Edgar C. Knowlton, Jr.), "On the Portuguese Dialect of Hong Kong" (R. W. Thompson), and "Exotic Preferences in the Lexicon of English As Spoken in Hong Kong" (R. W. Thompson). Although papers in this group touch upon only a few of the many historical problems in connection with the sea routes between China, Southeast Asia, India, and the West, many discuss topics tackled for the first time.

Part V, the final part, "The Hong Kong and Macao Region and South-East Asia in Chinese and Far Eastern Scholarship," includes nine papers: "The First English Sinologists. Sir George Staunton and the Reverend Robert Morrison" (J. L. Cranmer-Byng), "Wang T'ao and his Western Friends" (Lo Hsiang-lin, "Ku Hung-ming and his Interpretation of Chinese Civilization" (Liu Ts'un-yan), "Four Chinese Studens of the Hong Kong Morrison Memorial School" (Chan Hok-lam), "Les Transcriptions de la Langue Vietnamienne et l'Oeuvre des Missionnaires Européens" (Maurice Durand), "Un Rescapé Russe sur le Sol Vietnamien au XIX^e siècle" (Bui Quang Tung), "Chinese Literature in South-East Asia" (Ho Kuang-chung), "Chinese Studies in Taiwan" (C.T. Lo), and "Burmese Historical Literature, and Native and Foreign Scholarship" (Thaung Blackmore).

A list of contributors and participants and three indexes (personal names, titles, and subject matter) complete the volume.

Few commemorative, festschrift, or felicitation volumes on whatever subject for whatever occasion are meant for one reading from cover to cover, for they are mostly diverse of content and quality. The volume under review is no exception. It is, however, distinguished by several positive features. The papers are well-organized into the various parts of the book and the overall themes are clear and simple. They first deal with the aboriginal cultures and peoples of South China and Southeast Asia and then examine the two major connections this region has had with external civilizational forces—China to the north, and India and the West in the western direction. Finally, Hong Kong and Macao provide a focus for an examination of the cultural historical scholarship of the whole area. The inclusion of historical, archaeological, linguistic, and ethnological studies between two covers underline the interdisciplinary nature of the cultural historiography of South China and Southeast Asia. The University of Hong Kong and Professors Drake and Eberhard are to be congratulated for bringing about this handsomely produced volume that will be a useful addition to all reference libraries that have an interest in the cultural history of Southeast Asia.

Archaeology and Physical Anthropology in Oceania, Vol. I, No. 1. A. P. Elkin, ed. University of Sydney, 1966. U.S. $4.00.

Reviewed by RICHARD PEARSON, *University of Hawaii*

In response to the need for increased publication facilities for archaeology and physical anthropology concerning Australia and related regions of Southeast Asian and the Western Pacific, the University of Sydney has initiated a new journal, at first to be published three times each year, and later to become a quarterly. The editor is A. P. Elkin who has guided *Oceania* to success; the associate editor is N. W. G. MacIntosh; the physical anthropologist, A. A. Abbie, and the archaeologist, J. Golson, are on the advisory board. The first number, well balanced between physical anthropology and archaeology, contains: an article on the statistical comparison of some features of Hoabinhian tools from recent excavations in Thailand with those from Australian sites by J.M. Mathews; a site report and general archaeological and historical study of the Port Hacking area of New South Wales by J. V. Megaw; a description and classification of the squatting facets of Australian aborigines by J. D. Prasada Rao, and two articles on blood grouping by R. T. Simmons, and by C. C. Curtain, N. B. Tindale, and R. T. Simmons.

Communications regarding subscriptions and advertisements, articles, and books for review should be sent to the editor, *Archaeology and Physical Anthropology in Oceania*, Mackie Building, University of Sydney, N.S.W. The present subscription rate is $4.00.

True Stories of the Island of Lanai. Lawrence K. Gay. Honolulu: Mission Press, 1965. xiv, 85 pp., 37 figs. U.S. $5.00.

Reviewed by T. STELL NEWMAN, *University of Hawaii*

Lanai has been largely ignored by authors, and very little is known about its people or their early history. It was, therefore, with great anticipation that I read this volume for Lawrence Gay promised in his preface exactly what I hoped for: "This book was written to give its readers an informative concept into the early history of the inhabitants of Lanai, unknown to most of the people of Lanai (p. vii). Gay seems to be eminently qualified to write about Lanai, for he spent much of his youth on the island when his father, Charles Gay, had extensive land holdings there.

His volume begins with a very short description of Lanai geography, which is followed by a rambling account of the arrival and stay of the Gay family just after the turn of the twentieth century.

The next section of the book deals with the early history of Lanai, mainly a retelling of Hawaiian folk tales about the island. A further section is devoted to the description of the flora and fauna of Lanai, and the succeeding one tells local folk tales. The final section is devoted to some of Gay's observations on the changes wrought on Lanai by civilization.

It was with a sense of disappointment that I finished the book for, although what the author had to say was interesting, the volume contained little of use to one interested in "the early history of Lanai." One must read the volume as a rambling, subjective account of personal observations and viewpoints and not as a volume worthy of being placed in a reference section on Lanai.

My decision not to use the volume for a description of early culture history rests upon a series of major criticisms of the book: (1) the embittered account of the circumstances leading to the sale of Charles Gay's holdings on Lanai is almost certainly only one side of the picture; (2) the author's scholarly knowledge is suspect when one notices that the land divisions are mislabelled on his map (pp. 2–3); (3) the continual use of "specie" for the singular of "species" is jarring when one reads of the years that Gay was associated with the Extension Division of the University of Hawaii and with the State Board of Agriculture and Forestry (pp. 66, 69); (4) his discussion of Lanai vegetation is conducted under the headings: "Flora" (p. 65), "Trees" (p. 66), "Ferns" (p. 69), "Fruit" (p. 70), "Plants" (p. 71), and "Medicinal Herbs" (p. 72). Are not trees both plants and florae?

Bats, in addition, are listed under "Birds" (p. 75) and other fauna under "Animals," "Migratory Birds," "Rodents," and "Insects" (pp. 75–76).

There are no footnotes, nor is there a bibliography to indicate where date come from, although Gay uses population statistics and other information that would not have originated with him.

Thus, I find that the book does not give an account of Lanai that is useful to scholars of Hawaiiana.

Prehistoric Research in Northwestern Punjab. Anthropological Research in Chitral. Paolo Graziosi. (Scientific Reports of the Italian Expeditions to the Karakorum (K^2) and Hindu Kush—V: Prehistory and Anthropology). Leiden: E. J. Brill, 1964. viii, 249 pp., many tables, 153 plates, Gld. 70.

Reviewed by HALLAM L. MOVIUS, JR., *Peabody Museum, Harvard University*

During two seasons, 1954 and 1955, Professor Paolo Graziosi, of the University of Florence, conducted archaeological investigations in the Northwestern Punjab as a member of the Italian Expedition to the Karakorum and Hindu-Kush. Again in 1955 and later in 1960 he also undertook anthropological studies (*i.e.* physical anthropology) of various ethnic groups living in the State of Chitral. The archaeological research was conducted in the area between the Jhelum and Indus rivers to the east and west, and the Soan (or Sohan) and Haroy rivers to the south and north, in other words the same region as had previously been investigated by Drs. de Terra, Teilhard de Chardin, and Paterson during the 1930s. No pleistocene geologist accompanied Graziosi, and consequently his monograph is of necessity limited to his archaeological observations.

Two of the surface sites investigated yielded a late lithic industry associated with pottery, but the balance were all referred to the Palaeolithic Period on the basis of the typology of the tools represented. The largest and most important single station is south of Rawalpindi near the village of Morgah, a locality that was not reported by the de Terra-Teilhard-Paterson Expedition. Graziosi makes the following statement on page 13:

> As has already been stated, a stratigraphical localization of the industries collected at the abovementioned stations, presents great difficulty, as they were not found in stratified deposits, but on the surface, and in many cases at the same place were mixed with artifacts of different epochs owing to the heterogeneousness of their physical state and typology. But in some other cases the uniformity of the patina in relation to the typological affinity have constituted a valid element in order to define a culture and establish a correlation between one place and another.

On the basis of this very clear and direct assertion, it is not always easy to follow the author's observations and deductions concerning the typology of the various assemblages, none of which can be demonstrated by the stratigraphic evidence. For he categorically states that in this region the pebble and bifacial cultures occur together with the flake culture, with prevalence of one or another of these cultures according to the periods. (The term *culture* is not defined; evidently Graziosi is referring to a particular tool-making tradition). He argues that here the hand-axe had a polymorphic origin, the prototypes consisting of tools made of natural pebbles and flakes, but nowhere in the text can one find any field evidence in support of this view. Accordingly, this claim can only be considered at best as a thus far unproved working hypothesis.

Certainly Graziosi merits commendation for advocating a new and very much more refined terminology for classifying and describing assemblages of pebble-tools (*cf.* pp. 14–17) in accordance with the views published by the late van Riet Lowe in Uganda in 1952. For some curious reason which is not explained, this system is not employed in the text; however, it is covered in connection with the description and analysis of the new collections for the palaeolithic sites in the Northwestern Punjab. Admittedly, the author has raised certain very important and fundamental issues, but these are of a somewhat speculative nature and involve such unanswerable problems as the origin of the Sohanian chopper-chopping-tool tradition itself. Graziosi does not believe that this complex constitutes an independent tradition (an observation with which the author of this review agrees), but the question is, how can one prove this concept? Furthermore, the evidence supporting one of Graziosi's main observations concerning the occurrence of flake implements at all sites in direct association with pebble-tools, hand-axes, and cleavers is by no means clear. Perhaps this deduction is based on the uniformity of the patination, but if so, there is no explicit statement to this effect. Throughout the book, notwithstanding its shortcomings, the illustrations are numerous and excellent, but since the totals of the various categories of implements from each locality are not given, quantative studies based on the data presented in this monograph are not possible.

In Part II, the author presents the results of his anthropological (i.e. physical anthropology) investigations in Chitral, a state in the extreme northwestern portion of Pakistan, near the Afghanistan frontier. A total of 137 individuals—60 Kalash, 33 Katis, and 44 Chitrals—were measured and morphological observations were recorded in each instance. A series of photographs showing typical individuals of each group is reproduced in plates 96–152. However, the data have only been subjected to very limited treatment—*i. e.* distribution tables showing many characteristics—but nothing further. In a future publication, however, additional information is promised, and this will be eagerly awaited.

This book should be in all anthropological libraries. Notwithstanding the limitations noted in this review, the factual information is set forth in clear and well-organized fashion. Furthermore, it records the results of the first major archaeological and anthropological investigations in this very important region since the conclusion of World War II. It is a well produced, handsome volume containing a wealth of illustrations (153 plates: 94 of the archaeological material, 57 of physical types, and 2 maps) to supplement the well-organized text. This monograph by Professor Graziosi certainly reflects great credit on the scientific achievements of the Italian Expedition to the Karakorum and Hindu-Kush.

Sarawak Museum Journal Special Monograph No. 1 : Borneo Writing and Related Matters. Tom Harrisson, ed. (*Sarawak Museum Journal* XIII, 27, November 1966.) Kuching: Sarawak Museum, 1966. xii, 426 pp., 1 fig., 20 plates. M$10.00.

Reviewed by S. GILL, *University of Hawaii*

This special issue of the *Sarawak Museum Journal* qualifies more as an encyclopedia than a monograph, since it contains a total of ten articles by nine different authors. The issue is focused on two items in Borneo culture regarded by the editor as systems of indigenous writing: the Sarawak Sea Dayak painted boards called *papan turai* and a Kalimantan Kenyah painted board said to record grades achieved in *mamat*-society rites.

Papan turai, literally "writing boards," are narrow planks, three to five ft. long, which bear on one side a row of painted or incised characters, on some boards made up of non-figural assemblages of strokes, circles, and squares, but on others recognizable as houses, trees, birds, animals, and human figures. The function of these characters as cues to remind the Sea Dayak shaman of the sequence of verses in long chants sung at different feasts was first published by Tom Harrisson in 1965 (*Bijdragen tot de Taal-, Land- en Volkenkunde,* CXXI, 1, pp. 1–57). The article by Harrisson and Benedict Sandin in the present volume, "Borneo Writing Boards," is an expansion of the 1965 study that contains annotated translations of the chants accompanying five *papan turai* (including the one published in 1965, which is re-translated).

Harrisson's discursive introduction offers a new interpretation of the *papan turai* as a kind of "Iban metaphysical bible" which originally served to codify a system of bird augury thought to date from the migration of the Sea Dayak into Sarawak. But nowhere amid the welter of information and speculation contained in the introduction and notes is there a satisfactory answer to an important question raised by the *papan turai:* do the characters in fact constitute an indigenous Borneo script or "script in embryo" as Hedda Morrison suggested in 1957?

Harrisson refers to the boards as an "archaic 'script' " (p. 96), but, in a passing mention of the indigenous syllabic scripts of the Philippines, Java, and Sumatra, states that in Borneo "each mark is nearer a Chinese 'character' but represents an idea, a phase, more than a phrase and all of a verse theme in one of the Dayak chants" (p. 48).

To cite David Diringer's definition (quoted on p. 33 and referred to *passim*), writing is "the graphic counterpart of speech, the 'fixing' of spoken language." Since each of the *papan turai* characters appears to record a cluster of ideas, they may function as complex visual images, symbols of concepts, not of sounds, and may thus belong instead to the rich and evocative language of art, not of speech.

A useful Borneo parallel, not discussed by Harrisson, may be found in the painted boards used by Kalimantan Ngadju shamans in connection with long chants at the *tiwah* death rites. These boards contain elaborate representations of the boats, villages, and topography encountered by the soul in its journey to the afterworld. It seems at least possible that representations of this sort were the original inspiration of the Sea Dayak *papan turai.*

Similarly, the *mamat* board published in an article by Harrisson in the same volume, "A Kalimantan Writing Board and the MAMAT Festival," may also function as art, not script. The board, some 20 in. long, is said to contain 33 characters. Those shown in the portion illustrated in Plate VII include 6 hornbill heads and a human head. Both hornbill birds and human images, called *kalung,* occur in Kenyah art as emblems of aristocracy and spiritual power, together with 2 other images, the *aso* dragon figure and the demonic face.

Other specimens of Borneo "writing" offered in this issue may also serve as this kind of emblematic or symbolic ornament: the elaborate spirals incised on 2 north Kalimantan tombs (Pl. XIX, XX), the decor of south Kalimantan Ma'anyan ash-respositories (Pl. XVII, Fig. 2), and the carved Sabah grave-makers (Pl. IX, X, XI, XII). At least, no ethnographic data is offered to contradict this interpretation. In regard to the Ma'anyan decor, A. B. Hudson specifically states that "the designs certainly do not now function phonographically to represent any form of spoken language, nor do they seem to serve as pictographic or mnemonic devices" (p. 343).

Despite its misleading title—it is not a monograph and it is not on Borneo writing—this volume nevertheless contains a treasury of new and valuable ethnographic information. It is the last issue of the *Sarawak Museum Journal* to be edited by Tom Harrisson, now retired as Government Ethnologist and Curator of the Sarawak Museum, and it is a fitting monument to the ethnologist, ornithologist, archaeologist, and journalist whose indefatigable energy, spicy prose, and deep love of Borneo have served Sarawak for twenty years.

A Lost Civilization. The Mongols Rediscovered. Walter Heissig. Translated from the German edition by D.J.S. Thomson. New York: Basic Books, 1966. 271 pp. U.S. $6.95.

Reviewed by LAWRENCE KRADER, *Syracuse University*

Walter Heissig has had a long and distinguished career as a student of the classical written culture of the Mongols and of the written and oral culture of the Mongols of Inner Mongolia and Manchuria. He has combined these competencies and interests in the present work, which is written in a popular style and treats the various literary genres of the Mongols past and present: their historical and literary compositions, oral literature, theater, etc. The whole is placed in its historical setting, and the narration is enlivened by personal anecdotes, past and present, the author's own reminiscences and the like, designed to make palatable a field that is thought all too often to be dusty. His scholarship is impeccable, and the personalia are in good taste. The book should enliven the field of Mongol studies, whose practitioners are not always known as personalities in their own right. It should therefore provide a good background work for the growing field of Mongol studies in this and other countries.

The translation is competent to the extent of rendering the informal style of the author from the German. It is marred, however, by solecisms of transcription and transliteration. As a record of a keen searcher and knower of the Mongol literature and culture, this book makes most lively and informative reading. It is a pleasure to recommend it.

An Historical Atlas of China. A. Herrmann. (Norton Ginsberg, gen. ed.). Chicago: Aldine Publishing Company, 1966. 88 pp., 64 maps. U.S. $12.50.

Reviewed by RICHARD PEARSON, *University of Hawaii*

This new edition of Herrmann's 1935 work provides a general background for historians and anthropologists. For readers of *Asian Perspectives*, the major contributions are in historical archaeology and historical geography. The maps pertaining to prehistory have not been revised, and in areas which have advanced rapidly, such as neolithic archaeology, they are virtually useless. The only additions to Herrmann's original treatment are ten new maps on contemporary China. The essay "Refurbishing the Nine Cauldrons" by Paul Wheatley is indispensable, not only for its archaeological content but also for the light it sheds on the history of sinology and Southeast Asian studies. Nowhere can one find such a wealth of information, well indexed, with characters, in one publication.

Japan before Buddhism. J.E. Kidder, Jr. Ancient Peoples and Places Series, No. 10, Revised Edition. New York: Frederick A. Praeger, 1966. 284 pp., 65 figs., 108 plates.

Reviewed by RICHARD PEARSON, *University of Hawaii*

Kidder's important summary of Japanese archaeology, originally published in 1959, has gone out of print and into a revised edition. Briefly, I noted the following innovations in the revision: deletion of the frontispiece, the Otani bronze bridle, substitution of Mezurashi*zuka* for Mezurashi tomb (pp. 13, 164), 'gryphon-headed' for 'dragon-headed' sword pommels (p. 13), 'fairly recent' for 'newly published' (p. 22), a paragraph on the dubious fossil man materials (p. 26), three paragraphs on palaeolithic materials (p. 33), new reservations about the statement that the wide-bladed spearheads found in Yayoi are purely symbolic (p. 112), and a résumé paragraph concerning social complexity in the Yayoi (p. 130). The bibliography has also been brought up to date, both in Japanese and English materials.

Let us hope that in a succedding volume Kidder will present a modernized Jōmon chronology and a full treatment of the exciting pre-Jōmon materials that may have existed in Japan as early as 40000 B.C., according to recent reports of the Eleventh Pacific Science Congress in Tokyo. In the meantime, readers may wish to consult Japanese summaries such as *Nihon no Kōkogaku* (Kiyoshi Asano, ed.) or the relevant sections of *Sekai Kōkogaku Taikei.*

A Jar Coffin Cemetery at Shingch'angri, South-western Korea. Won-yong Kim. Archaeological and Anthropological Papers of Seoul National University, Vol. 1. Seoul: Seoul National University Press, 1964. 56 pp., 8 pp. English summary, 18 plates.

Table of Prehistoric Sites and Remains in Korea. Won-yong Kim. Archaeological and Anthropological Papers of Seoul National University, Vol. 2. Seoul: Seoul National University Press, 1965. 109 pp., 3 pp. bibliog., no price indicated.

Excavation of the Deposit Layers at P'ungnapri, Seoul. Won-yong Kim. Archaeological and Anthropological Papers of Seoul National University, Vol. 3. Department of Archaeology and Anthropology, Seoul National University, 1967. 46 pp., 6 pp. English summary, 45 plates, no price indicated.

Reviewed by RICHARD PEARSON, *University of Hawaii*

As one not competent in the Korean language, but with an interest in Korean archaeology, I intend here to comment rather generally on these publications rather than to discuss them critically at great length.

These volumes represent the inception and continuation of an important monograph series on Korean archaeology, and are a tribute to the energy of Won-yong Kim. A second series, *Korean Archaeology,* was started in 1967 to handle shorter notes, student papers, and information about recent archaeological activities.

Volume 1 is the report of the excavation of a protohistoric jar-coffin cemetery, dated at the beginning of the Christian era, near the city of Kwang-ju, in Cholla nam-do, southwestern Korea. Excavation took place in April 1963. The author concludes from the size of the jars that they were used for children, although no preserved bone-remains were found. In shape, the burial jars resemble utilitarian vessels of the same period. One bronze dagger-head ornament, although found on the surface, seems to be from the clay layer in which the burials occurred and is very similar to an iron specimen from north Korea. As well as a stone axe and stone arrowhead, fragments of iron were found. Possible settlement remains of a subterranean house and hearth were found immediately to the northeast of the burials, but were not investigated intensively. Kim concludes that the jar burial custom, as seen at Shinch'angri, indicates diffusion from China along the west coast of Korea, rather than from Yayoi Japan.

Volume 2, entirely in Korean and without maps, is a list of currently known prehistoric sites in Korea, including north and south. It consists of tables and a bibliography. Pottery, stone artifacts, metal, bone, and shell are noted. Location is given to the nearest modern community. The work might be useful for preliminary distributional studies, although the data are rather general. As a base line on which to build future intensive excavation and synthesis, the publication is very practical. The bibliography gives a good impression of the renewed activity in Korean archaeology in the past few years.

Volume 3 is the report of a site on the southern bank of the Han River on the eastern outskirts of Seoul that was occupied about A.D. 300 by the people of the historic kingdom of Paekche. Test excavations were undertaken for nine days in 1966 to determine how the historical records might be supplemented, what ceramics characterized sites occupied in the transition between Historic and Prehistoric periods, and whether or not the site was occupied at times other than Paekche. The results from Shinch'angri and P'ungnapri indicate, according to Kim, the great strength of Chinese influence into the south of the Korean peninsula from Protohistoric into Historic periods.

The test excavations showed well-defined stratigraphy extending to a depth of at least 1.2 m, although the author states that the rapid and frequent flooding of the river makes the meaning of the stratigraphy inconclusive. He eschews any generalization based on the quantification of the pottery remains, either within the site or between sites and presents no radiocarbon dates or any other means of absolute dating except the use of historical texts. Many of the recent refinements in seriation suggest solutions to the problems that he feels are insurmountable in the American approach—"The original function of the pottery or potteries, its significance and meaning within the living community concerned, relationships among potteries, place of production, etc." (p. 5). Without quantification in some form, however, detailed regional chronologies, or even distributional studies are impossible. Perhaps the approach he advocates, especially when the short duration of Korean excavations is taken into account, will not lead to the confusion which it has brought into the study of Jōmon and Yayoi.

The P'ungnapri site, with the variety of pottery types that has been recovered, its clearly delimited plan, historical references, and its proximity to Seoul merits further intensive excavation for detailed analysis of artifacts and a settlement pattern. The present monograph provides an appropriate beginning for such a larger project.

Southeast Asian Tribes, Minorities, and Nations. Peter Kunstadter, ed. Princeton University Press, 1967. Two volumes, 902 pp., 14 maps, tables. U.S. $22.50.

Reviewed by WILLIAM G. DAVIS, *University of California, Davis*

Even when compared with other "emerging nationality" areas of the world, contemporary Southeast Asia presents an impressive array of social and cultural complexities with which sovereign governments must somehow come to grips. The origins of population segments are very diverse: they are partly the residue of the disorganization of antique states; partly elements of many small- and some large-scale migrations; and partly the descendants of foreign minorities that were encouraged to emigrate to the region by colonial regimes. Linguistic diversity is so great and language distribution so dispersed that members of adjacent communities sometimes speak quite different languages. Yet attempts to introduce official national languages have met strong opposition from minorities. Ecology, which in some areas of the world is a unifying factor, tends to divide minority groups, for ecology varies widely with altitude and exposure within the same limited geographic region. Religion, which on the surface would seem to provide some basis for unity, is expressed in an enormous number of localized variations which may, again, provide a divisive influence.

Perhaps ranking above all other complicating factors in Southeast Asia is the historical-political process that is peculiar to the region. First, there is the magico-religious quality of the protohistoric sacred kingdoms that has encouraged a focus of interest upon the capital city, leading away from the development of positive policies towards rural minorities. This city-centered tendency has continued in contemporary times, reinforced now by a concentration of economic power in the hands of a few essentially urban persons, who tend to pursue a style of life that contrasts strongly with that of rural citizens. Second, in very important ways, each contemporary political unit is something of a "political fiction," in the sense that each is the result of forces inherent in colonial administration and competition. These units, then, do not represent long-standing associations that predate the European colonial period. The result has been the demarcation of arbitrary political boundaries that often cross-cut the spacial distribution of ethnic identities, providing a condition that leads to incipient irredentism of a kind that can readily serve the aims of external agents—both Western and communist-block—and indigenous national liberation fronts. Indeed, as one of the authors of the present volumes remarks, in most cases the very margins ethnic minorities mark-off limit national unity. This latter issue has long been recognized and treated as significant in various formulations of the "dual," "plural," or "multiple" society (e.g., Boeke 1953, Furnivall 1939, Nash 1964); but in the past, it has been attributed to the dynamics of colonialism. The contributors to these volumes make clear that such a simple explanation simply will not interpret the data.

Southeast Asian Tribes, Minorities, and Nations is a collection of twenty-one papers, each by a different author, which seeks to treat some aspects of these and related problems in a number of Southeast Asian states. (There are no papers included dealing with Indonesia, the Philippines, Cambodia, or the Malay Peninsula, though this omission is partly compensated for by the inclusion of papers dealing with ethnic minorities in China and eastern India. Moreover, the stress is upon rural minorities, and urban minorities such as the Chinese and Indians are not treated). The papers are the outcome of two symposia held in 1965, one in Princeton and the other at the annual convention of the American Anthropological Association in Denver. Papers are grouped together by nation, and each section is prefaced by an introduction (almost entirely by the editor) which seeks to put them into perspective. In addition, Volume I is prefaced by a long and (I found) quite informative general introduction, in which the editor sets out some generalizations concerning the nature of minority-state relations. All papers and introductions are footnoted and include useful bibliographies.

It should be noted, however, that the papers included address a wide range of topics, some of which are only indirectly problem-oriented. Several of them are broadly descriptive and are best considered as basic ethnographic contributions—although valuable ones, since they deal with groups about which little printed material exists (e.g., Barney on the Xieng Khouang Meo of Laos; Kandre on the Iu Mien of Thailand; Kunstadter on the Lawa and Skaw Karen of Thailand; F. W. Mote on the Thai Yunnanese; and Ley on the Sabah Murut). Others deal quite directly with the general minority-central government relationship (Diao on Chinese minorities; Burling on Assamese; Harrisson on Sarawak; Moerman on Thai-Lue; and Hickey on Vietnamese hill tribes). Still others deal with specific kinds of programs aimed at improving conditions for minority groups (e.g., Osborn and Ward on "resettlement" in Laos; Huff on the Mobile Development Program in Thailand; Mandorff on the Thai Hill Tribe program; Geddes on the Thai Tribal Research Centre, and O'Donnell on the Strategic Hamlet Program in Vietnam). In general, from this group of papers one might conclude that "We have now too much evidence to accept either the idea that these tribal and minority people are inherently conservative or that they are completely flexible" (Kunstadter, p. 32). Or put another way, minorities appear to desire modernization, but on their own terms, and with the preservation of their own ethnic identities. They do not, however, necessarily interpret their interests to be inevitably linked to those of the prevailing regime. Moerman's fieldnotes, cited in Volume I, offer a succinct statement of an attitude that seems widespread in rural Southeast Asia:

> "We offered them [the Central Thai] candles and flowers [traditional symbols of loyalty]. They became our [rulers] and we pay them taxes. When the communists come, they may conquer the Central Thai. Then we will offer them flowers and candles and call them [rulers]. We will pay them taxes and all will be as before. We are common people; what happens to officials does not concern us" (Moerman, p. 403).

A fourth theme that emerges in several papers departs from Leach's (1954) analysis of relations between Shan and Jinghpaw, and Moerman's earlier (1965) concern for the difficulties inherent in the identification of ethnic units. It is this theme that is of most general anthropological interest. Several of the authors (notably Lehman, Maran, Kunstadter, and Moerman) have gone beyond a concern for minority-central government relations to consider the basic nature of an ethnic unit; and in doing so, they have questioned the very notion that "a society" is a discrete, bounded, entity. The contention is that one derives very different units depending upon the criteria employed to define the units; units defined by political, cultural, or linguistic critieria, for example, are rarely isomorphic. Moreover, Lehman insists groups assume somewhat different identities depending upon the identities and nature of alter groups with which they are contrasted, much as do individuals who seek to match identity to context (cf. Goodenough 1965). Leach, then, quite properly noted the institutionalized process by which individuals could transfer ethnic identity; but according to Lehman, he understressed the more elusive—and important—point that any ethnic unit can be defined only in the context of the larger system of units of which it is an element. The majority population and the minority population are but different aspects of a larger structural unit, and there is little point to any attempt to divide this system into a fixed number of discrete spheres, as is commonly done in cultural surveys (e.g., LeBar, Hichey, and Musgrave 1964). "A culture," in this treatment, is simply that. It is a cognitive model which implies particular kinds of relations to particular alters; and individuals may choose to use that system, or some alter system, in coping with everyday situations. This view quite obviously goes beyond the central concern of these two volumes minority-state relations—to consider the nature of inter-minority relations themselves. Furthermore, there are here some important implications for practical policy, for as Kandre (p. 625) puts it, practical use of the information resulting from social research requires that it refer to reality. In beief, there is a necessity to obtain more information about the nature of conscious folk models, intercultural relations, and specific historica developments before adequate developmental programs can be formulated. In fact, Maran doubts if it will be possible to develop a *single*, coherent, minority program for any area. Thus, considering the magnitude of the problems involved and the low priority minority development programs receive in most national budgets, the outlook for Southeast Asian minorities is not much happier than the present position held by minorities in the Western world.

Once it is established that the nature of local ethnic identities cannot be grasped except in reference to external relation, the papers included become doubly significant. For it now becomes apparent that one must not only consider the external relations of groups as they are presently described in the general literature, but must also question the traditional categories of ethnographic descriptions themselves. Moreover, the problems of "pluralism" are certainly not confined to Southeast Asia. In dealing with the problems they have raised, therefore, the authors have provided contributions that may prove to be significant both for national policy in multiple societies wherever they are found and for general social theory. For me, these comments have raised an intriguing related problem: if it is the case that the nature of local polities cannot be comprehended except in relation to alter ones, is it also the case that alleged economic "conservatism" among them can only be understood in relation to competing external sectors? Clearly, putting emphasis on these matters opens fresh new dimensions for ethnography that one can only hope will be pursued in much greater detail.

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Reviewed by ALICE G. DEWEY, *University of Hawaii*

This book is of great interest both substantively and theoretically. In analyzing the principles upon which Japanese peasant society is organized, the author throws light on important problems of the social structure. The factors of residential proximity, economic cooperation, and political association in the Japanese village structure override the principles of kinship in the formation of the major social units. The discussion of non-unilineal or cognatic systems has forced the reexamination of the primacy of kinship in the formation of basic social units. In cognatic systems, co-residence and aspects of economic activity are equal with geneological ties in determining group affiliation. Nakane's study carries the analysis a step further showing us a system in which kinship is subordinate even to the formation of the household.

Nakane starts by analyzing the structure of the household, which she points out is the primary unit of social organization in Japan. This unit is actually defined by the criterion of local residence and therefore differs basically from the family that primarily involves kinship and affinity. The household is formed around the nucleus of an elementary family, but may include unrelated members as well as distant kin. Moreover, the co-members of a household are considered the closest social entities to Ego—closer and more important even than close kin who do not happen to be members of the household. At any one time there can be only one head of the household, and he can be succeeded by only one heir. The heir is commonly a son, but he need not be any sort of kin; adopted sons and adopted sons-in-law are not uncommon. Only the successor retains rights in the household. Collaterals must establish separate households at marriage. Property and various rights essential to the pursuit of agriculture are attached to the household unit and not to any individuals within it. In fact, should the people forming a household die or leave the village, the house structure together with the associated property and rights may be assigned by the village council to an entirely unconnected set of people.

The household is thus not in any sense a descent group. It is, however, a corporate group with continuity through time. Internally, it is organized under the management of the head, and externally it is represented by him. Branch households formed by non-inherenting siblings may be attached to the senior household as subordinate dependent households in the same way that households of servants or tenants may be attached to the household of a master. The genealogical connection between the successor household and the branch households has of itself no sociological importance. The relationship depends on common economic and political activity.

Nakane goes on to outline the definition and fuctions of the *shinrui.* This is a category much like kindred, reaching out bilaterally to first cousins. Unlike kindred, which follows genealogical links between individual consanguineal kinsmen, the *shinrui* use as units of computation the household, including affines with consanguineal kin.

The rigid limitation on household membership seems to be dictated by the need to maintain a balance between the population of a village and its limited natural resources. In many areas, by the late Tokugawa period, villages had already built up the total number of households that could be supported by locally available resources. Recent economic development has changed this picture by opening up new wage-earning opportunities in both rural and urban areas. However, the basic arrangements can still be seen in many areas operating at some level.

The same emphasis on the household, and on nonkin ties, can be seen in the structure of the *dōzoku,* a corporate group composed of a number of households. In these groups, kin ties in and of themselves are not primary. A *dōzoku* is a group of economically cooperating households that operate under the political control of and direction of a senior household. There may be kin ties between households, but this is in no way necessary. Here again, residential proximity, economic cooperation, and political relationships override genealogical connections. The same is true of several other social groupings, for example, households linked by patron-client ties, households operating as equal members of corporately organized neighborhoods that operate a common labor pool, and households that establish shorter term reciprocal labor exchange relationships.

The book is a pleasure to read; it is clearly written and well-organized. I have stressed here the elements that are important for social structural analysis. There is, however, much other valuable material in it. Nevertheless, the main themes do not get lost, even though there is a wealth of detail surveying changes over several centuries and over a number of regions. I recommend the book heartily. It should be required reading for anyone interested in social structure theory as well as for those more generally interested in peasant societies.

Ältere und Mittlere Steinzeit: Jäger-und Sammlerkulturen. Handbuch der Urgeschichte I. Karl J. Narr, ed. Francke Verlag Bern und München, 1966. 516 pp., 104 illus., 22 plates.

Reviewed by PER SØRENSEN, *Centralinstitute for Nordisk Asienforskning*

Several reputed European scientists are contributors to this handbook of the Early and Middle Stone Ages. It is entirely in German. In the foreword the handbook is categorized as between a brief outline review publication and a voluminous encyclopedia, which should be especially appealing to the reader who wants to get an exhaustive orientation without necessarily reading original or special monographs himself. It should also be a guide to students. It is useful for gaining insight into areas beyond one's own specialization.

Compared to other more or less condensed outline publications, this is a rather good handbook. Besides chapters on prehistory, generally in a geological background, mentioning main types of artifacts, discussing the chronologies, and giving a generally up-to-date presentation of the state of present knowledge, it has valuable chapters on physical anthropology, the background provided by the natural sciences, cultural anthropology, art and spiritual life of prehistoric and recent societies (the latter for comparison). The bibliography is in most cases up to 1964 and indexes are very good.

Of course it must be realized that errors can hardly be avoided in such a comprehensive book and that specialists may feel their own fields or areas are vaguely or insufficiently represented. But even with this fact in mind, it is found that the chapters are of a somewhat uneven level. So the Mesolithic of Europe—admittedly a difficult period to synthesize—is somewhat weak. Turning to East Asia, the editor's chapter on the Palaeolithic Age is almost to the standard intended in his foreword remarks, but it is certainly not for lay readers. Narr attempts here to correlate the Asian cultures with those of Africa and Europe, but has great difficulties in doing so, as one might expect after hearing Shurkin's paper at the International Congress in Praha this year (1966). It is interesting to observe that Narr also does not feel too satisfied with or convinced by Movius' hypothesis of the chopper-chopping tool complex as an independent industry distinct from the contemporary industries and cultures in Africa and Europe. On the other hand, from the present evidences, he is unable to replace it with anything better. Narr is certainly the only one of this opinion today.

In contrast to his description of the Asian Palaeolithic Age is Narr's chapter on the Mesolithic. Unfortunately it is not of the same standard as the former, and it can definitely not be used as a guide for either the lay student or the specialist. Even if the whole state of knowledge and problems are extremely confusing today, it has been possible to bring more data, both of the various areas and the find complexes.

Used carefully as a handbook, this volume can certainly be recommended. It will be interesting to see Volume II on the Late Neolithic and Volume III on the Bronze and Iron Ages, especially if the standard of the first volume can be maintained.

The Archaeology of the Palau Islands; An Intensive Survey. Douglas Osborne. (Bernice P. Bishop Museum Bulletin 230). Honolulu, 1966. 494 pp., bibliog., 121 figs., 142 tables. U.S. $14.00.

Reviewed by FRED M. REINMAN, *California State College at Los Angeles*

The publication of this long awaited report by Osborne of his survey and test excavations provides us with the beginnings of a systematic study of the archaeological remains of the Palau Islands. Following an introduction, the report is divided into two parts. Part I is a brief discussion of the physical characteristics of the islands including the flora and fauna, a review of the early history and European contacts, and a short general ethnography. Part II, the bulk of the report, describes the numerous sites recorded during the survey, including terraces and related stonework, the pottery, and botanical collections. Test excavations made on the islands of Koror, Aulong, Anguar, and Ngarkbesang are also discussed in this section. Part II concludes with a description of the artifacts, a suggested chronology, a graphic seriation of the ceramics, and a discussion of goals and recommendations for future work. An appendix dealing with Palauan money constitutes the final part of the monograph.

A major value of the report results from the detailed description of the large number of sites and features recorded and the description and analysis of the pottery. Site recording is an important first step in any well-conceived archaeological research program, and this report will be the basis for future work concerned with settlement patterns, population size and other demographic problems, as well as archaeological excavations. Stone walls, house platforms, and stone paving were fairly common on many of the sites recorded. An extensive system of terracing, earthwalls, and trenches was also recorded—ranging from simple slope terraces, irregular in size and placement, through the more highly developed "brim and crown" terracing that Osborne regards as the culmination of this particular kind of development. There is as yet no conclusive evidence as to the function of these various forms, but some were probably agricultural while others may have been defensive. They are an aspect of Palauan prehistory that needs considerably more work.

The pottery description and analysis is important, since pottery generally provides the bulk of the artifact content of the sites in Western Micronesia. As much of it is undecorated and of rather poor quality, typologies are difficult to construct. Nevertheless, it has proven to be an important indicator of change in this area as has been shown for the Marianas Islands (Spoehr 1957) and for Yap (Gifford and Gifford 1959). Pottery also forms the basis for Osborne's seriation of the sites in time. Test pits provided the initial sequence of changes through time and the sherds were placed in categories based on thickness, paste, surface finish, and rim type. In general, the thinner sherds were earlier, the finer pastes earlier than the coarse, the smudged finishes earlier than colored or slipped surfaces, and the simpler curved rims earlier than those with thickened rims. Using these attributes as a guide, the larger number of sites on the various islands were then arranged in a chronological sequence in a series of graphs. This seriation is also tied in to Osborne's suggested Palauan chronology in the concluding discussion.

Scattered through the report, but primarily in the concluding discussion, are statements regarding the relationships of the Palau Islands to surrounding areas. Most of these references are extra-Micronesian—the Philippines and areas of Indonesia to the southwest and towards Melanesia. Brief mention is also made of relationships with the other nearby western Micronesian islands of Yap and the Marianas. Since both Spoehr (1957:174) and the Giffords (1959:200) have suggested as a result of their archaeological investigations on these islands that a relationship probably existed between them and the Palaus, I would have liked further discussion and comparisons with these areas. The historical and archaeological indications of large populations on most of the major islands of these groups, the evidence for movements of peoples between Yap and the Palau and Marianas Islands, and their geographical position across East-West movements or as a pathway for North-South movements, make an understanding of their possible interrelationships essential for the reconstruction of this region's prehistory. Linguistic analysis, by placing the languages of each of these groups in separate categories, suggests that considerable differences may exist in their cultures. A superficial analysis of the pottery (the major component of sites in all three areas) tends to support the linguistic evidence. Methods of tempering, rim and vessel forms, and surface treatment of the Palauan pottery shows little resemblance to either the Marianas types or the later Yapese laminated wares. If we compare the descriptions and illustrations presented by Osborne with those from Yap and the Marianas Islands, the pottery of the Palaus appears quite different. On the other hand, resemblances between Yap and the Palau do occur in the extensive use of stone for walls, house platforms, trails, and, paving. Stone walls and house platforms are also found on the island of Guam in the Marianas but are relatively rare and do not occur in the extensive village complexes reported from both Yap and the Palaus. Finally, stone carving seems to have been much more important in the Palaus than on either Yap or the Marianas Islands.

This volume is a valuable contribution to our knowledge of Micronesian prehistory. It contains considerable data on the archaeological remains and potential of these islands. It is sometimes poorly organized and difficult to follow. I found that the use of bar graphs, rather than the tables used for other sites, makes a comparison of Koror 7 with the other samples more difficult. The lack of a table of identifying symbols for each of the bar graphs also necessitates studying Fig. 34 until one memorizes the types being compared. In view of the stated unity of the ceramic complex (p. 83) and the use of the graph from Koror 4 as a baseline, seriated graphs of the sherds from Koror sites should also have been included. In spite of these minor faults, this is a source of information Oceanic specialists cannot afford to leave out of their libraries.

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Ancient China. Edward H. Schafer and the editors of Time-Life Books. (Great Ages of Man: A History of the World's Cultures.) New York: Time-Life Books, 1967. 191 pp., bibliog., illus., col. maps. Mail order only, U.S. $6.60.

Reviewed by JUDITH TREISTMAN, *Cornell University*

In his introduction, Professor Lien-sheng Yang says that Edward Schafer's book is "like a guided tour of a celebrated arboretum conducted by a humanist-botanist." Mr. Schafer leads the tour through collections of legend, art, and history with sincere connoisseurship and a mild touch of epicurean delight. Unfortunately, the "ancient" in *Ancient China* refers largely to the T'ang dynastic period (A.D. 618–907). Although one must admit that some of the tastier items were of this era, closer attention to earlier archaeology would have improved the diet. The best features of the book are Schafer's emphasis on the early multiethnic influences shaping Chinese civilization and the very sensitive working of poetry into text and illustrations. Less fortunate is his entrancement with the courtly life, an interest that tends to dominate even the discussion of technology.

The picture essays are produced in typical *Time-Life* style and are exquisite—with the exception of two major indiscretions—the placing of "blue" bronzes against lettuce-green backgrounds and a fuschia piece against radish-red. The intrinsic beauty of the bronze masterpieces would have better graced the garden without these artistic embellishments. Otherwise the photographs should awaken and excite most students, and the book can be recommended for general high school and college classes.

Studies in Prehistory. D. Sen and A. K. Ghosh, eds. Calcutta: Firma K. L. Mukhopakhyay, 1966. 194 pp., maps, drawings, charts. Rs 35.00.

Reviewed by WALTER FAIRSERVES,
Thomas Burke Memorial Washington State Museum, Seattle, Washington

These studies were gathered together by the editors as a memorial to Robert Bruce Foote, the so-called father of Indian prehistory. Foote made the discovery of a hand axe in lateritic gravel near Madras in 1863. Between that time and his death in 1912 he developed his researches into prehistory by dint of explorations and collections of artifacts and geological data. The result was the placement of Indian prehistoric archaeology on a firm foundation.

The initial essay is appropriately a reprinting of Foote's original article published in 1866 on the occurrence of stone implements in lateritic formations. This is followed by a series of chapters on problems in prehistory outside India by such distinguished figures as von Koenigswald, Prufer, Garrod, and F. H. Bordes. The real meat of the volume is contained in articles by Dani, Sankalia, Khatri, and Agrawal. Dani's article sums up the early prehistory of Pakistan and then describes his recent work at Buner. At Bunner he found what appears to be a late Upper Palaeolithic horizon underlying one that is essentially microlithic. This material helps to fill a particularly glaring gap in borderland archaeology.

Sankalia's contribution is entitled "Early Stone Age in Poona." It is a review of the sites of that age in the area around Poona. Two major areas are involved; the first is located along the Mutha Valley and the second around the confluence of the Mutha-Mula. Chopper and chopping tools are found in gravels of what appears to be a first aggradational phase there. This was followed by silt deposition barren of artifacts. In a second gravel stage above this silt, Indian Middle Stone Age material has been associated. This gravel stage was in turn covered by a silt deposition.

Khatri gives an excellent summation of the alluvial stratigraphy in the Narmada Valley. Using this as well as a typological scheme, he sets forth four evolutionary stages for the hand axes found there:

1. Chopper-chopping-tool stage (Mahadevian): Red clay and Gravel I.
2. Late Chellian—Early Acheulian stage: Gravel II and Barmhan ghat factory site.
3. Middle Acheulian: Adamgarh Hillock, in laterite pockets.
4. Late Acheulian: Yellow cross-bedded sand.

He then briefly outlines the faunistic evidence, which is really too scanty for a truly solid return. However, the article certainly points the way for the next investigator.

Agrawal discusses the Harappan chronology in the light of the growing number of radiocarbon dates for that civilization and related cultures. He concludes that the date bracket of ca. 2300–1750 B.C. for the

Harappan is most fitting. Personally, I that feel 1750 B.C. is still too early for the late manifestation in parts of Saurashtra and the Doab but is probably correct for the Indus Valley and immediately adjacent regions.

Other articles in the book on the megalithic problem, the laterite of Eastern India, etc. added to the above data make the total of more than a little value to the study of the prehistory of Asia.

Versuch einer Stilanalyse der Aufhängehaken vom Mittleren Sepik in Neu-Guinea. Reimar Schefold. Basel, Basler Beiträge zur Ethnologie, Band 4, 1966. 304 pp., 1 map, 39 figs., tables.

Reviewed by WILHELM G. SOLHEIM II, *University of Hawaii*

The purpose of this study "... is to establish the specific characteristics of the traditional art style in the Middle Sepik River region, and to ascertain the origin of certain of its forms" (p. 255). The work "... is based on visual analysis of museum collections only" (p. 255).

The material used by Schefold for his analysis is a group of 510 wooden suspension hooks. The majority of the hooks are carved with a representation of a human face; and the analysis is concerned with variations of the features—nose, mouth, etc. The analysis and conclusions are logical but may not actually explain the reasons for variation. It is possible that some of the variations explained as the result of the continuation in time of older forms alongside the newer forms may be instead the normal variation of a single type in space. I wonder whether the European archaeologists and ethnologists are acquainted with the controversy on types and typology that we Americans recently went through. One of the articles that was part of this argument is relevant to this analysis. This is J. A. Ford's "On the Concept of Types; the Type Concept Revisited" (*AA* 1954, 56:42–54). In making the kind of analysis that Schefold presents in this book it would be well to keep in mind Ford's argument about the variation of a "type" in space. In any case, Schefold's conclusions must be verified before they can be completely accepted.

Independent studies using different materials and reaching the same conclusions that Schefold reached would certainly add weight to Schefold's theories but still would not prove that the conclusions are valid. The only way this can be done is through excavation. From excavation, the only likely source of data on neolithic art styles in this area is pottery. I, for one, hope that more European archaeologists will come to New Guinea and the Far East in general and base their studies of prehistory on their own carefully excavated materials rather than on museum collections. There is nothing wrong with studying museum collections; it just seems to me that the time spent on such a subject would be much more valuably spent on archaeological research in the field. It may well be that the conclusions on prehistoric art styles in this report are purely by-products of a study, the primary aim of which is to define the traditional art style of the Middle Sepik. If so, my comments are out of order. However, I still would like to see more European archaeologists excavating in the Far East and the Pacific.

New Guinea: The Last Unknown. Gavin Souter. New York: Taplinger Publishing Co., Inc., 1966. 296 pp., selected bibliog., foldout map, 69 plates, appendix, index. U.S. $7.95.

Reviewed by EDWIN A. COOK, *University of California, Davis*

By 1875 the unknown frontiers of the world had dwindled to the point that the few remaining unexplored territories took on a fascination disproportionate to their reality. To be sure, New Guinea, the second largest island in the world, has some very distinct attributes—geological, zoological, and anthropological—but these attributes do not encompass the wild and erroneous imaginings of such types as Captain J. A. Lawson who in 1875 wrote (*Wanderings in the Interior of New Guinea*) of "an active volcano about 4,000′ higher than Mt. Etna, a waterfall 900 feet wide and a few feet deeper than Niagera [*sic*], ... a mountain 3,755 feet taller than Mt. Everest ... " (Souter p. 4); nor do New Guinea's natural wonders justify the fanciful flights of Tregance among the "Orangwoks," a tribe "... mounted on little ponies, striped with yellow and white" (Souter p. 8) among whom he allegedly spent nine years. It was accounts such as these that caught the public fancy, not the often sobering (and frequently ethnographically inaccurate) accounts of the early missionaries and coastal navigator explorers. Since exploration tends to be directed towards attaining what is currently valued, New Guinea lay dormant, too poor in the natural endowments needed to promote extensive commercial interests. Its only observable asset was a bewildering and hostile variety of pagan souls.

Though New Guinea had been known by Indonesians from the eighth century and by the Portuguese and Spaniards from the sixteenth (Ynigo Ortiz de Retes named the island "Neuva Guinea" in 1545 when he passed it on one of his trips from the Moluccas to Mexico), it was not until 1793 that any deliberate settlement by Europeans was initiated. This first settlement, for the nutmeg trade, was established by a Captain John Hayes (who called the place New Albion and unofficially took possession for Britain in the name of King George III) at Dorei Bay near what is now Manokwari on the Vogelkop. The settlement lasted only twenty months and was then abandoned.

The next settlement effort came in 1828 by the Dutch. This was an official expedition that originated in the Moluccas. Plagued by malaria, beriberi, and hostile natives, the settlement lasted a mere seven years. It was not until 1848 that the Dutch government actually took formal possession of the western half of New Guinea.

In 1858, Alfred Russell Wallace visited two Dutch missionaries on Mansinam Island in Dorei Bay. Sporadic efforts by scientists (Luigi D'Albertis, Nicolai Mikluho Maclay) and missionaries (Samual McFarlain, A. W. Murray, W. G. Lawes, James Chalmers, who was eaten by cannibals during Easter in 1901) continued along the coastal areas, occasionally penetrating the more navigable rivers, into the 1870s. It was D'Albertis who first penetrated far into the interior. In 1876, he ascended the Fly River for a distance of 580 mi. and returned to the south coast in two months. His second assault on the Fly River (and the natives there as well) in the following year was a near disaster. Not only did he not succeed in bettering his previous mark—he fell some 50 mi. short of the distance of his first trip—but this trip took three times as long.

After this early interior exploratory effort, little further progress was made in opening up the middle of New Guinea. Missionization efforts were concentrated along the coastal areas that permitted greater freedom of travel from one mission station to the next, and a few minor expeditions sortied into the area behind Port Moresby. Perhaps the most famous of these missionaries were Lawes and Chalmers. At this time New Guinea was still largely internationally unclaimed. Factions in Australia had urged Britain to annex the remaining half of the island and finally, in late 1884, Germany and Britain divided the remaining half of New Guinea. The capital for the British protectorate was established at Port Moresby, and during the early years of administration, efforts were concentrated towards exploration, pacification, and the apprehension of natives responsible for murdering white men. The German New Guinea (Kaiser Wilhelmsland) capital was originally established at Finschhafen, later moved to Stephansort (Bogadjim), and ultimately to Friedrich Wilhelmshafen (Madang). From 1884 to 1899 German New Guinea was managed by the independent Neu Guinea Kompagnie. German exploratory efforts were largely confined to the Sepik (Kaiserin Augusta) and Ramu (Ottilie) River systems.

Gradually, portions of the interior land mass were explored. The difference in approach to this task is beautifully summed up in Souter's contrast between the New Guinea exploratory novice, Otto von Ehlers, and the veteran, C. A. W. Monckton. Both Ehlers (in 1895) and Monckton (in 1906) attempted to traverse the eastern tip of New Guinea through the Owen Stanley Range; Ehlers's party—2 Germans and 41 natives—was unsuccessful. Both Germans lost their lives, and 21 natives were lost in a traverse that took two months. Monckton set out from Kokoda, where he was resident magistrate, with 130 men, and almost three months later emerged at the mouth of the Lakekamu having lost but 4 men.

In 1908, Hubert Murray assumed the lieutenant governorship of Papua and continued in that post until his death in 1940. By 1914, most of the area around Port Moresby and east of there to Milne Bay had been visited by patrols. Several trips were made up the Fly and Kikori rivers and inland to the land of the Kukukukus. During this period, in Kaiser Wilhelmsland, exploration of the interior continued via the three major rivers, Sepik, Ramu, and Markham. When World War I broke out Australia quickly captured the German-held portions of Melanesia, with the exception of Captain Detzner who remained at large in the interior tromping back and forth waving his flag and singing his songs during the entire war, and who announced his presence to the Australians at the conclusion of the war only to learn that the Germans had lost. After World War I, Australia was given the mandate for Kaiser Wilhelmsland, the Bismarck Archipelago, and the German Solomon Islands, which they maintained administratively separate from Papua.

Meanwhile, from 1848 when the Netherlands claimed West New Guinea until the late 1930s, Dutch efforts in their portion of the island were largely confined to the maintenance of a few administrative stations and mountain-climbing expeditions to the Carstensz Toppen and other high peaks of the interior.

It was also during the later years of this period that the airplane began to be used, not only as the principle aid to exploration (e.g., Dr. Stirling's expeditions up the Mamberamo to the interior of Netherlands New Guinea in 1926), but also commercialy with the opening of a run from the goldfields at Wau to Lae: after numerous decades of slogging through swamps and scrambling up the muddy-slick ridges, man's blistered feet were relieved. Today there are around 300 airfields throughout New Guinea. The advent of the airplane, however, did not mean that exploration by foot was at an end, for it was at about the same time that Karius and Champion successfully traversed New Guinea at its widest point, from the Fly to the Sepik, an effort that took them from 8 December 1926 until 19 January 1928. The next great unexplored region to fall was the area between the Strickland and Purari Rivers, and in 1935, O'Malley and Hides traversed this piece. At the same time, the great inland valleys were being opened. While exploration in Papua was mostly spurred on by administrative needs, the interior of the Mandated Territory was the subject of gold-prospectors—Asaro, Goroka, Chimbu, and finally the great Wahgi valleys. These valleys, long thought to be uninhabited as well as uninhabitable, were found to contain some of the largest concentrations of populations in Melanesia—but not much gold. The "gold" was ethnographic, not mineral.

However, all exploration in New Guinea ceased with the beginning of World War II. It was at this time that the administration of the Mandated Territory of New Guinea and the administration of Papua were amalgamated under the Australian New Guinea Administrative Unit (ANGAU).

After the war, the political and military conflicts that arose between the Kingdom of the Netherlands and the newly formed Indonesian Republic eventually culminated in the inclusion of West New Guinea in the latter nationality. Souter, with the newsman's skill, carefully documents the events leading up to the loss of West New Guinea by the Dutch. Souter documents, once again, America's seemingly limitless, and more often than not unknowledgeable and misguided, efforts to "stabilize" Southeast Asia, attempts that led her to support Indonesia's claim to West New Guinea. As Souter notes, "America could at least feel that by bringing pressure to bear on Holland she had removed the danger of war between one of her European allies and an Asian power whose goodwill she was anxious to retain, but there was little satisfaction for anyone else" (p. 231). But of course America is herself now engaged in a war in Southeast Asia and has induced several other countries to aid her and, furthermore, she has not retained the "goodwill" of Indonesia.

At the same time, in eastern New Guinea, development was slowly moving forward while outside pressures pushed for a more rapid pace. As Souter puts it, "The two horns of Australia's colonial dilemma [are] the impatience of the outside world, and the patience which seemed to be demanded by the difficulties of the internal situation" (p. 237). In addition, true cargo cults all over New Guinea have in many instances hampered orderly development towards Administration goals. Minister for Territories Paul Hasluck said, in 1960, that, "... the rate of change has to be geared to the rate of response" (p. 253), but this policy was overturned by the 1962 United Nation's Visiting Mission report when they said, in effect, "... that rate of progress should not be a circumstance but a policy, and that if the indigenes themselves were as yet apathetic about political reform, Australia should spur them on" (p. 253), and they further recommended "complete preparations for the election in 1964 of a fully representative Parliament" (p. 254). This led (I know from personal experience) to the somewhat ludicrous situation in the Lower Jimi River area of newly contacted indigenes voting (which they did not understand) for candidates (whom they did not know) for offices (which were incomprehensible) in places of which they had never heard. Nevertheless, the requirements of the Foot Report are today being met, and New Guinea is emerging into the international political arena, prepared or not.

In conclusion, Souter's book is a must for the New Guinea-phile. He is quite knowledgeable about his subject, and his presentation is always interesting. I could detect very few errors: the map opposite page 32 promulgates an error in the earlier airways maps by putting the place, Tabibuga, on the north side of the Jimi River when it is actually on the south side. Souter should have known better, since he visited Tabibuga in 1958. Also, though the anthropologist A. C. Haddon is quoted on pages 38 and 39 and cited again on page 188, the work from which this material is derived is not noted under Haddon's name in the bibliography.

There are several outstanding features of this book. There is a chronological listing (pp. 263–267) of the major historical events from 1512 to 1963, and the bibliography is segmented into seven parts corresponding to the different portions of the island at various time periods, e.g. Kaiser Wilhelmsland: 1884–1914.

If one wants to know something about New Guinea, reading this book is one of the best ways to start learning.

Ts'ao Yin and the K'ang hsi Emperor: Bondservant and Master. Jonathan D. Spence. New Haven: Yale University Press, 1966. xiv, 329 pp., bibliog., map. U.S. $7.50.

Reviewed by ICHISADA MIYASAKI, *Kyoto University*

Studies on *The Dream of the Red Chamber,* one of the best novels of the Ch'ing era (sometimes nicknamed "Studies on Red") have flourished more and more since the establishment of the Chinese Republic. Sources about the author Ts'ao Chan, e.g., the palace memorials written by Ts'ao Yin, grand-father of Ts'ao Chan, that were found in the Imperial Palace and published in the series *Wen-hsien-ts'ung-pien,* are regarded as being most important and have been exhaustively scrutinized with considerable results. The accumulation of new discoveries has convinced scholars that the extravagant way of living described in the novel actually reflects the lives of members of the Ts'ao family at its height of prosperity during the K'ang Hsi reign. Many valuable books have appeared, such as Chou Chu-ch'ang's *Hung-lou-meng-hsin-cheng,* which contribute factual information that affects our preconceptions rather strongly.

Inspired by the new trend of "Studies on Red," Spence published his elaborate work *Ts'ao Yin and the K'ang Hsi Emperor* based on deep and detailed research. The author, being an historian, concentrates his interest apart from the novel itself on the institutional problem, the role played by Ts'ao Yin, grand magistrate and at the same time lowly bondservant of the Emperor in the Ch'ing administration.

During the Ming era, eunuchs abused their influence even in the provincial administration, and the Ch'ing Dynasty expelled them from the seat of power and instead used the bondservants called *pao-i,* who belonged to the upper three banners, the Imperial Guard Divisions. At the beginning of the K'ang Hsi reign, a new yamen, the Imperial Household, was established to deal with the official and personal affairs of the bondservants and to control all of the eunuchs dwelling in the Imperial Palace. A list of governmental positions, named *pao-i-ch'üeh,* occupied exclusively by bondservants, was fixed. The three textile commissioners in Nanking, Soochow, and Hangchow were listed in it.

This *pao-i-ch'üeh* is mentioned neither by Chou Chu-ch'ang or Spence. With regard to this matter, I regret that the author did not consult the monumental Japanese work *Shinkoku Gyoseiho* (1914) *(The Ch'ing Administration),* which even now is indispensable for institutional studies on China.

The Ts'ao family, whose Chinese origin was betrayed by its name, became part of the Manchu power structure; it was listed in the Manchu plain white banner as being of bondservant status. However, the family was treated as Manchu, not as Chinese or *Nan-chun,* and this was why members of the family found unparalleled favor in the emperor's eyes. At the beginning of the K'ang-hsi reign, Ts'ao Hsi was first appointed the textile commissioner in Nanking (1663–1684), and after him, his son Ts'ao Yin, from the same position in Soochow (1690–1692), succeeded to the Nanking position for twenty years (1692–1712). On Ts'ao Yin's death, his son Ts'ao Yung and his adopted son Ts'ao Fu were successively appointed to the same service (1713–1797) until the latter was dismissed by the Yung-cheng Emperor. Thus the post of textile commissioner in Nanking was almost monopolized by members of this family for over forty years. This position spontaneously yielded a great deal of money over and above the regular salary; Ts'ao Yin moreover filled the post of salt inspector in the Liang-huai district, also a veritable mine of gold in those days. As Ts'ao Yin had a great sum of money at his disposal, he contributed heavily to the emperor's household and to the luxurious court life. When the emperor made his tours in the southern provinces, Ts'ao Yin acted four times as host in Nanking, each time deeply impressing the emperor and incurring his deepest favor. The emperor held him in the most complete confidence, treating him as a confidential assistant rather than as a magistrate and gave him the most important duty of reporting every happening in his district that might be of use to the administration. The device of secret informants is a characteristic of the so-called Conquest Monarchy, affording later historians a principle by which to examine dynastic life.

The author's description is interesting and persuasive, with abundant informative footnotes. In such an original work, interpretive points which might cause some misunderstanding are bound to occur. The following remarks are submitted in the hope of clarification:

1. *Ken-wo* is understood by Spence as a privilege to be bought by salt merchants from the government (p. 180). By Saeki, however, *ken-wo* is believed to be the hereditary right to the status of salt merchant which originated in the Ming era (Tomi Saeki, 1956, *Shindai Ensei no Kenkyu,* p. 250 ff.). The same kind of privilege existed for the clerks in the yamen. This dispensation of privilege must derive from the feudal period.

2. The so-called Chancellor of Palace Memorials, *Tsou-shih-ch'u,* was situated by the grand innermost gate of the Imperial Palace. This gate was the division between the Inner Yard and the Outer Court, and neither eunuchs of the Inner Yard or ordinary officials of the Outer Court could pass beyond. So a small office composed of several eunuchs and officials was established on the spot to transmit Palace Memorials directly to the emperor (Ichisada Miyazaki, *Ajiashi Kenkyu* III, pp. 371–372). Thus it is unlikely that a storehouse called the *ts'un-chu,* as the author imagined, existed. Though I have not examined for myself the archives of Ts'ao Yin in Taiwan, I guess *ts'un-chu* might be the name of a Manchu official stationed in the office. Happily, Kyoto University keeps a precious book, the list of government officials for the year 1724 (two years after the death of the K'ang hsi Emperor), the discovery of which I reported briefly in the Kyoto University journal, *Toyoshi Kenkyu* 1958 (Vol. XI, 4). We find in it the Manchu name three times; however, the second

Chinese character is slightly different, being written 柱 instead of 住. However, it would appear that the name *ts'un-chu* was not rare among Manchus in those days.

3. The list mentioned above, *Chin-shen Ch'üan-shu*, supplies very valuable information. For instance, the position of textile commissioner was officially higher than Spence supposed (p. 144). The three textile commissioners were ranked above the educational commissioner (Hsüeh-cheng) and the financial commissioner (Pu-cheng-shih) and next to the governor of the province (Hsun-fu), or vice-governors of Eight Banners (Fu-tou-t'ung), probably because he was authorized by the title Ch'in-ming or imperial mandate. It was Ts'ao Fu, the adopted son of Ts'ao Yin, who held the office of textile commissioner in Nanking in 1724. His career was described as *yin-sheng*, i.e. "privileged by father." We may surmise that he rose from secretary of the Board of the Imperial Household, one of the officials of the sixth rank, to textile commissioner of Nanking. The case of Ts'ao Yung, his brother-in-law, was quite the same.

4. The word *shih-min* or *shih-shu* is translated "scholar-commons" by the author (p. 126). I think it is nothing other than a combination of two opposite ideas, literati and illiterati, upper and lower classes, or officials and nonofficials. So it should be better translated vaguely "people" when used independently and "other people" when used after enumeration of degrees. Today's young generation in Japan and China all too readily say that common people were beyond the concern of the ruling class. The fact of the matter is that the common people could criticize the administration and participate in it though at the lowest level. The K'ang-hsi Emperor on the occasion of his southern tours granted audience to peasant fathers and elders to inquire about their harvest.

5. Finally, a slight mistake: Yung-lo-an (p. 235) was a name of a place, probably a nunnery erected in the Ming period that belonged to the T'ai ts'ang tomb of the Ming Emperor Yung-lo. The emperor transported the capital from Nanking to Peking, died on the way to attack the Mongols, and was buried in the northern suburbs of Peking.

The Cranium and Maxillary Dentition of Australopithecus (Zinjanthropus) Boisei. P. V. Tobias. (Vol. II, Olduvai Gorge series, L.S.B. Leakey, ed.) Cambridge: Cambridge University Press, 1967. 264 pp., bibliog., 49 tables, 39 figs., 42 plates, index. U.S. $17.50.

Reviewed by A. T. STEEGMANN, JR., *State University of New York at Buffalo*

On occasion, a reviewer receives a book which he recognizes as one destined to become a classic in its field. Certainly, I feel that Volume II of the Olduvai Gorge series is such a monograph, which should be especially well received in view of its long and impatiently awaited appearance. The essence of its value is simply summarized in the foreword by Sir W. E. Le Gros Clark; "I do not suppose that any such meticulous and exhaustive description of a fossil hominid skull... has ever before been made." It must be additionally noted that the entire effort is of the highest professional and technical quality. Readers will find the volume carefully organized, superbly illustrated with photographs and craniograms, usably indexed, and referenced from both palaeontological and anatomical literatures.

Three major sections range from the initial, highly detailed morphological description, through a less detailed summary, to a concluding section that presents interpretations. Since the descriptive portions of the book are written for specialists in human palaeontology, a general audience will probably find them difficult to digest.

As the most detailed anatomical description unfolds, it becomes evident that more than just detail was a goal in writing. The text is rich in comparative data; not only is *zinjanthropus* constantly compared to other hominid materials, but in the Weidenreich tradition, a considerable amount of pongid material is also employed. Though there are obvious historical drawbacks in the latter somewhat archaic approach, Tobias points out that the australopithecines *are* still quite "pongid." Here he presents the interesting interpretation that many of the features of *zinjanthropus* are "gorillaoid" (in the allometric sense) and are not consequently of much taxonomic value. Numerous generalizations concerning australopithecine anatomy, notably those authored by J. T. Robinson, are "corrected" on the basis of *zinjanthropus* data, and these sections of the text have much to offer australopithecine as well as anthropologist watchers.

Pongid-hominid comparisons may be slightly overdone for some tastes, particularly in view of the contemporary nature of the pongid remains. The now considerable body of hominoid materials from Miocene times was little employed. Such an approach lends itself to easily misinterpreted statements such as the following: "This slight overhang allies *zinjanthropus* to the chimpanzee and to modern man; while the orang-utan is closer to Peking Man in having a more marked overhand..." (p. 195). "Alliance" in this case is presumedly anatomical only.

Finally, much energy, in both "detail" and "summary" sections, is devoted to description and discussion of jaws and teeth. Photos and drawings of the teeth are well employed and enhance the text measurably.

For the general reader, Tobias's summary of the cultural and taxonomic status of early pleistocene hominids (including *zinjanthropus*) will provide as fine a statement as can be found. Though he remains a "splitter" in accepting a lower pleistocene *Homo* and *Australopithecus*, the latter includes only three species, two of them temporal. I feel Tobias also poses an interestesting challenge to his "lumper" opponents with some thought-provoking data on coefficients of variation among hominoid groups (and their use in taxonomic arguments) and a challenging discussion of variation in general. Though I found some disagreement with his points (as will most lumpers), his approach is closely reasoned and merits a careful reading.

The concluding section is richly documented and contains a discussion of Robinson's australopithecine "dietary hypothesis"; Tobias doesn't accept it and the "hypothesis testing" is to my view a high point of the entire book.

As to phylogeny, the present outline contains little change over that presented in his 1965 *Science* article.

Though its price may keep this second Olduvai Gorge volume off the student bookshelf, it is nevertheless an essential part of the library of any serious prehistorian. I suspect it is one of those references that will go out of print in its youth and remain in demand thereafter.

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EDITORIAL

THE reader will note that most of the articles in this volume were received in late 1966 or early 1967, and with few exceptions, the papers have not been altered. One would naturally assume, then, that in a rapidly changing field, the data are obsolete. However, since the material has not been published in detail elsewhere, it should be valuable to most readers. Excepted, of course, are area specialists who have access to the results of significantly more recent work. (I make this explanation not to defend our late publication date, but to remove blame from the contributors for the papers' tardy appearance.)

Volume XII, a special issue on Southeast Asia, should reach publication quickly. I have been getting this issue together since 1958, and although I still lack materials from two significant countries, the volume is being edited. In its present state, then, Part I presents histories of the archaeology of most of the countries in Southeast Asia, and Part II takes stock of archaeological research in areas of Southeast Asian prehistory. Part II also presents new data from Thailand—regarding domesticated plants previous to 9000 B.C. associated with a Hoabinhian flake-tool assemblage, and, from another site in northeastern Thailand, metallurgy since about 3500 B.C. The book reviews are of recent books on Southeast Asian prehistory. I am also actively collecting material for Volume XIII.

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The Maori-Polynesian Comparative Dictionary. Edward Tregear. Reviewed by Donn T. Bayard, University of Hawaii.

ABBREVIATIONS

A	*Antiquity,* Cambridge
AA	*American Anthropologist,* Washington, D.C.
AJS	*Australian Journal of Science,* Sydney
AP	*Asian Perspectives,* Honolulu
APAO	*Archaeology and Physical Anthropology in Oceania,* Sydney
AR	*Anthropological Records,* University of California, Berkeley
BAE	*Bureau of American Ethnology,* Washington, D.C.
BDAA	*Bulletin of the Department of Archaeology and Anthropology,* National Taiwan University, Taipei
BEFEO	*Bulletin de l'École Française d'Extrême-Orient,* Paris
BIEAS	*Bulletin of the Institute of Ethnology,* Academia Sinica, Taipei
BMFEA	*Bulletin of the Museum of Far Eastern Antiquities,* Stockholm
BSEI	*Bulletin de la Société des Études Indochinoises,* Saigon
BSEO	*Bulletin de la Société d'Études Océaniennes,* Papeete
BSGI	*Bulletin de la Service Géologique Indochine,* Hanoi
BTLV	*Bijdragen tot de Taal-, Land- en Volkenkunde,* The Hague
CA	*Current Anthropology,* Chicago
FMJ	*Federation Museums Journal,* Kuala Lumpur
GR	*Geographical Review,* New York
IB	*Information Bulletin,* Pacific Science Association, Honolulu
JAS	*Journal of Asian Studies,* formerly *Far Eastern Quarterly,* Ann Arbor
JAOS	*Journal of the American Oriental Society,* New Haven
JEAS	*Journal of East Asiatic Studies,* Manila
JMBRAS	*Journal of the Malayan Branch, Royal Asiatic Society,* Kuala Lumpur
JPS	*Journal of the Polynesian Society,* Wellington, N.Z.
JRAI	*Journal of the Royal Anthropological Institute of Great Britain and Ireland,* London
JSO	*Journal de la Société des Océanistes,* Paris
JSS	*Journal of the Siam Society,* Bangkok
KK	*K‘ao-ku (Kaogu),* Peking
KKHP	*K‘ao-ku-hsueh-pao,* Peking
KKTH	*K‘ao-ku-t‘ung-hsün,* Peking
KZ	*Kōkogaku Zasshi,* Tokyo
M	*Man,* London
MH	*Malaya in History,* Kuala Lumpur
MJTG	*The Malayan Journal of Tropical Geography,* Singapore

MNMV	*Memoirs of the National Museum of Victoria,* Victoria
MS	*Monumenta Serica,* Tokyo
MSGI	*Memoirs de la Service Géologique d'Indochine,* Hanoi
NAM	*North Australian Monthly,* Townsville, Queensland
NGS	*Nieuw Guinea Studiën,* The Hague
NZAAN	*New Zealand Archaeological Association Newsletter,* Wellington, N.Z.
O	*Oceania,* Sydney
PEFEO	*Publications de l'École Française d'Extrême-Orient,* Paris
PJS	*Philippine Journal of Science,* Manila
PM	*Pacific Islands Monthly,* Sydney
S	*Science,* Washington, D.C.
SA	*Scientific American,* New York
SMJ	*Sarawak Museum Journal,* Kuching
VTLV	*Verhandelingen tot de Taal-, Land- en Volkenkunde,* S-Gravenhage
W	*Walkabout,* Melbourne, Australia
WW	*Wen-wu,* Peking
ZFE	*Zeitschrift für Ethnologie,* Berlin
ZMRNH	*Zoologische Mededelingen Rijksmuseum van Natuurlijke Historie,* Leyden
ZVRNH	*Zoologische Verhandelingen Rijksmuseum van Natuurlijke Historie,* Leyden

Recent Archaeological Activity in North Korea (II)

THE SHELL MOUND AT SŎP'OHANG

Received 23 September 1966

WILLIAM E. HENTHORN*

PALAEOLITHIC FIND

One of the more interesting finds in Korea in recent years has been the excavation of palaeolithic items from a shell mound at Sŏp'ohang, Kul-p'o-ri, Unggi-gun, North Hamgyŏng Province. (A glossary of anglicized Korean words is provided at the end of this Article.) While a number of fossilized animal bones identified from geological strata as pleistocene, including those of the arctic hairy mammoth *(Elephas primigenius)*, rhinoceros *(Rhicoceros antiquitatis)*, bison *(Bison exguus)*, the wild cow *(Bos primigenius)*, and several members of the deer, hyena, horse, goat, and rodent families, have been found near P'yongyang and at Tongkwan-chin and Ch'angdong-ni in North Hamgyong Province, until the recent find at Sŏp'ohang, there had been only one disputed find of pebble tools and implements of deer horn in a loess-like clay deposit identified as late pleistocene in the Tuman River area at Tongkwan-chin in 1939 (Naora 1940).

The Sŏp'ohang shell mound was excavated during the period 1960–1962, and a number of dwelling sites dating from the Neolithic period through the Bronze period were found in layers of the shell mound. North Korean archaeologists distinguish a Korean Bronze period whose limits they set roughly at 1500–500 B.C. This is not generally accepted by South Korean archaeologists. During the excavation in 1962, one roughhewn stone implement of quartz was found in a stratum of red clay beneath the shell mound. When it was later confirmed as palaeolithic, a further investigation of the site was begun.

The neolithic cultural layer ended some 220 cm below the surface. It was followed by a 75 cm stratum of sandy clay which in turn was followed by a 100 cm stratum of reddish-brown clay. Three roughhewn implements were found in the border region where the sandy clay and reddish-brown clay strata met, and two roughhewn implements were found in the reddish-brown clay stratum.

The implements had been fashioned from quartz and shale by work on two sides. North Korean archaeologists have given the name "Kul-p'o culture" to the site and remark that the implements are completely different from European palaeolithic items. Similar items from generally similar geological strata, they say, have been found in the Soviet Maritime Provinces.

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* Assistant professor, Department of East Asian Languages and Literature, Indiana University.

To date, only a brief one-page notice on the palaeolithic find has appeared in *Munhwa yusan* 2 (1963:54) with a reproduction of the items carried as the frontispiece to the issue (Fig. 1).

However, a lengthy report was carried on the excavation of the shell mound (Kim 1961). A summary of this article follows under "Neolithic Site" and, excluding Fig. 1, all illustrations reproduced here are from that report.

While I was writing these pages, a brief notice appeared in the Seoul daily *Han'guk ilbo* on 27 April 1965, page 7, of a reported palaeolithic find on the bank of the Kum River at Kongju-gun, Changgi-myŏn, Changam-ni, South Ch'ungch'ŏng Province by a Yonsei University (Seoul) team headed by Pogi Son, director of the Yonsei University Museum. Some 500 items were recovered, 100 of which were intact and included blades, axes, scrapers, and diggers. The items were crudely fashioned from porphyry, quartzite, feldspar, and animal bones. The brief notice also mentioned that the excavation had gone through an 11 m deep clay stratum to the find.

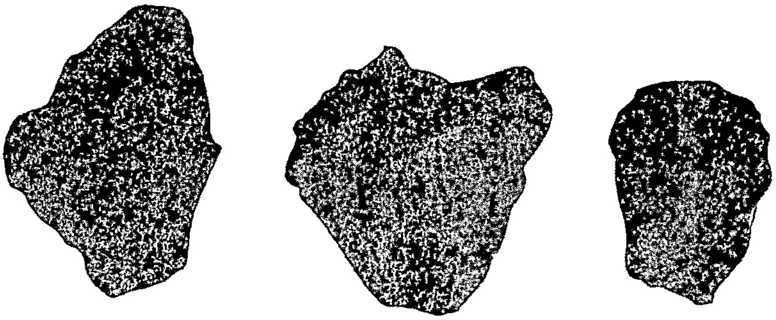

Fig. 1 Paleolithic items from Sŏp'ohang.

NEOLITHIC SITE

Report of the Excavation

Geographical Location of the Site and the Excavation

Sŏp'ohang is located northeast along the seacoast some 20 km from Unggi station—geographically almost due east—not far from the Korean-Soviet border and at the tip of the Sosura peninsula. To the southwest are the large lakes Manp'o and Sŏbŏnp'o, and a relatively low mountain separates the area from the Tuman River estuary. The lakes are separated from the sea by only a few meters, with the result that the sea actually flows into the lakes. The degree of salinity is about the same in each, while salt-water fish, shellfish, and crabs are found in the lake. At hightide, fish such as the crucian carp enter the lake. At present, the lake contains primarily gray mullet, spotted sardine, crucian carp, and oysters. At Sŏp'ohang, there is a mountain that joins the mountain range on the border, and consequently there are many wild animals in the area. Deer and boar are plentiful. The animal bones discarded in the mound of oyster shells indicate that an abundance of fish and game existed in the prehistoric period as well.

The shell mound itself is located to the north of the village of Sŏp'ohang, about 5–7 m up the slope of a mountain. The dimensions of the shell mound are as follows: width, 40 m; length, 100 m.

The shell layer was approximately 3 m thick, through which there were strata of yellow sandy clay and black humus. Earthenware sherds, stone, and bone items were found in the earth mingled with shell and in the shell layers themselves. Dwelling sites, fireplaces, and ashes were also found. The thickness of the cultural stratum was 2.8–3 m.

Some 184.5 sq. m were excavated during a forty-day period in June and July of 1960, and two cultural strata extending 2–3 m in thickness were investigated. Two sites were excavated: Site 1 in June and Site 2 in July. In the latter, however, work was suspended before the excavation reached the original ground level. The majority of some 18,000 items unearthed were earthenware sherds and animal bones. Some 80 pieces of earthenware were either complete or reconstructable, and stone and bone items amounted to some 850 pieces. One dwelling site was found at Site 1 and two dwelling sites were found at Site 2. Several other areas presumed by the concentration of cultural items to have been dwelling sites were also uncovered. The magnitude of the yield of this shell mound makes it uncommon, even in comparison with shell mounds excavated in neighboring countries.

The central portion of the southwest section of the site, which was the most important section, had been partially destroyed by the previous gathering of oyster shells, and the entire surface of this portion of the shell mound had been exposed. Site 1 was located at a spot some 30 m from the westernmost portion of the shell mound and away from the partially exposed area. The excavation at Site 1 was a strip 5–7 m wide running 17 m to the northwest. Site 2 was located in an undisturbed portion of the shell mound some 31 m from the base point and extended 12 m, with a width of 8 m. As Site 1 was basically the same as Site 2 in all respects, the present report includes only a few supplementary items from Site 1.

In general, the stratigraphy of the shell mound was a bit confused, and precise location by stratigraphy was difficult. The stratigraphy of Site 2 was, as far as the excavators were able to determine, as follows:

Black humus layer. Under the 20–30 cm thick layer of topsoil that covered the slope of the entire site, there was a dark humus layer some 70–120 cm thick in which shells were mixed with the humus. At spots in this stratum there were heaps of shells that at times ran to a thickness of 80 cm. From this stratum came many pieces of earthenware, stone, and bone items. A fireplace and a dwelling site were also unearthed here.

The basic type of earthenware was a black, burnished ware, but there were many painted vessels also. Forms included the *tanji* (small pot), *posigi* (small bowl), *taejŏp* (large bowl), and *chopsi* (dish). Stone items included drills, arrowheads, knives, short daggers, needles, horn hoes, spoons, etc. An especially interesting find in the black humus stratum were several fragments of a female figure moulded of earth. Several other moulded or carved items of bone and clay were subsequently found.

The fireplaces were chiefly made by laying down a circle of rounded stones. In the dwelling excavated, evidence of four rows of posts were found which when erected would have formed a rectangular, semisubterranean dwelling.

In addition to oyster shells, the shells of several other bivalves were found in the black humus stratum as well as a variety of snail shells and fish bones. Animal bones included those of the deer, dog, pig, bear, and a variety of fowl.

The designation *Cultural Level 2* was given to the black humus stratum; however, it is believed that further study will reveal that this can be subdivided into two or more cultural levels.

Yellow sandy clay stratum. Beneath the black humus stratum was a stratum composed basically of yellow sandy clay or loam. This stratum began 70–120 cm from the surface and continued to a depth of 280–300 cm. Thus, this stratum had a thickness of 150–180 cm. This stratum was not found to be as uniform as Cultural Level 2, for in some spots the sandy loam was relatively thick, while in other spots there were accumulations of oyster shells which exceeded 1 m in depth. From this stratum came a great quantity of earthenware sherds, stone and bone items, while several bone items with decorative designs incised were also found. The excavated items, the dwelling sites, and the fireplace unearthed from this stratum were vastly different from those found in Cultural Level 2. There were no undecorated earthenware pieces, and while the types of vessels found were generally similar to those from Cultural Level 2, their form was quite different.

The majority of the designs found on the earthenware belonged to the comb-ceramic group, and while the lines were incised, the rows of dots had been made by pressing an implement on which the design had been carved into the paste. Other designs found included the spiral decoration and the lightning-flash design.

In the group of stone items were such items as axes, arrowheads, knives, small pounders, and net weights. In addition to a number of bone items generally similar to those from Cultural Level 2, there were harpoons with barbs, a cylinder gem made of nephrite, some carved items which seem to have been amulets or talismans, and some other carved items of bone.

It was decided to call the yellow sandy loam stratum *Cultural Level 1*, and it appears that in the future, three or more cultural levels will be distinguishable within this stratum.

A layer of shells extended for some 70 cm beneath Cultural Level 1 and beneath the shell layer were the stones of the original ground base.

Dwelling Sites

Three dwelling sites were found, two at Site 2 and one at Site 1. One was apparently from Cultural Level 1 and the other two were from Cultural Level 2. The following identification numbers have been used:

Dwelling 1: Site 1, Cultural Level 2
Dwelling 2: Site 2, Cultural Level 2
Dwelling 3: Site 2, Cultural Level 1

Dwelling 1 was a rectangular dwelling site already largely destroyed by the gathering of oyster shells from the shell mound mentioned earlier. The shoulder line of the dwelling site began about 30 cm below the surface. It was some 50 cm from the shoulder line to the floor of the dwelling. The floor of the dwelling had been firmed up with clay, and the destroyed fireplace was located approximately in the center of the dwelling.

Directly inside the lines of the two remaining wall sections were holes for posts. At the wall to the north, 6 pillar holes had been laid out in almost a straight line extending over a length of 3.5 m. The length of the remaining portion of the east wall was about 3.7 m. Then, 4 postholes linked the east wall in a straight line. Inside the dwelling, there were several holes without apparent arrangement which appeared to have been for additional supporting posts. Parallel with the postholes, along the northern wall and separated from them about 1 m, were a row of 5 holes. The size of the postholes was a general diameter of 15–30 cm and a depth of 15–20 cm. Apparently, this dwelling site had 4 rows of posts for support of the roof similar to those associated with bronze-period sites in northeastern Korea and the Soviet Maritime Provinces.

The fireplace was made of rather small rounded stones which were spread out, judging by the remains, in a rectangular shape. A layer of red clay had been placed under the stones, while a layer of red baked clay 5 cm thick lay on top of the stones. The area about the fireplace was covered with black ash, and some 20 clam shells *(Mactra sachalinensis Schriner)* were scattered about in the ash. Some 60 cm from the fireplace was a large smooth rock. East of the rock near the fireplace was an overturned, undecorated crossbeam. A whetstone was found some 10 cm from the posthole in the northeast corner, and a little further away, some 25 clam shells with holes drilled in them were found in a group. They were apparently weights for fishing nets.

Many items were found on the floor of the dwelling and in the strata of deposition within the dwelling. These included earthenware sherds, obsidian arrowheads, axes, and a large variety of bone items.

Sherds of black, polished, undecorated earthenware were the most numerous sherd finds, but there were also some pieces which had flared mouths with a raised band encircling them.

A few pieces of colored, polished vessels were also found. Fragments of a small, red, polished *tanji* (small pot) collected during the excavation seemed to have come from the floor of this dwelling.

Of especial interest were the various types of modelled and carved items: (*a*) a bone spoon exquisitely made with diagonal lines of holes 1 mm in diameter as decoration, (*b*) a carved ornament of shell, (*c*) ornaments made of teeth, and (*d*) a figure of a woman fashioned of earth.

Dwelling 2 was found at Site 2 in the course of excavation of a pit filled with oyster shells. The east, west, and north shoulder lines of the dwelling appeared during the course of removal of the oyster shells and about 1 m further down, the line of another section of the wall appeared. Following the shoulder line to a depth of ca. 40 cm, the floor of the dwelling was reached. The floor had been made firm with earth. The shoulder line of the dwelling began in Cultural Level 2 in the black humus layer and continued into the yellow sandy loam strata of Cultural Level 1. A section of the floor of this dwelling had been destroyed by the pit in which oyster shells had been heaped. A portion of three walls of the dwelling could be ascertained: northeast, northwest, and south.

Directly inside the northeast wall line, set some 1.2 m back, were 4 postholes; there were 2 at the northern edge, and directly inside the western wall line, there were 2 more. The diameter of the postholes was 15–37 cm with a depth of 20–30 cm. The southern portion of the dwelling had already been destroyed, and only a portion of the fireplace remained. The fireplace was of hardened earth of a thickness of 15 cm; its east-west length was 95 cm, and the remaining portion of the north-west length was 20 cm.

At a level some 10 cm lower than the floor of this dwelling, at a distance of 1 m from the south side of the dwelling, 2 fireplaces were found, separated by a distance of some 40 cm. These fireplaces were made with large stones placed in a circle. It was evident that the dwellings to which the fireplaces had originally belonged had been destroyed when Dwelling 2 was erected.

Many items came from the floor of the dwelling and from the accumulated deposits on the floor. Representative items included: red-colored, polished vessels and black polished vessels; bone drills, delicately fashioned bone needles, bone arrowheads, items made of green and black stone and obsidian such as arrowheads, axes, net weights, and spindle whorls.

The pieces of 5 or 6 colored, polished vessels were found, among which 1 *taejŏp* (large bowl) was completely reconstructable, while the forms of *tanji* (small pot) and *posigi* (small bowl) were also apparent.

Two armlets or bracelets made of shell were found on the floor of the dwelling as were finger rings made of pumice or shell and several ornaments made of animal teeth.

Dwelling 3 was a semisubterranean dwelling that was circular in shape and had a diameter of 4.2 m. The shoulder line of the dwelling began about 2 m below the surface. The dwelling was located midpoint in Cultural Level 1. Continuing through several divisions of accumulation, the floor of the dwelling appeared about 2.7 m below the surface. The floor of the dwelling was on top of a pure oyster-shell deposit over 70–100 cm in thickness. A thin layer of clay into which oyster shells had been mixed had been used to pave the floor, and the floor was then baked, making it as hard as concrete. A similar floor was found at the lowest level of Cultural Level 1 at Site 1.

Following the edge of the dwelling at intervals of 70–120 cm were postholes laid out in a circle. However, in the north were 4 postholes running in a straight line. Since there were no facilities for an entrance anywhere else, it was assumed that this might have been the entrance. The majority of the postholes were roughly the same size, but a few were almost twice as large as the others. A fireplace was located in the center of the dwelling. An ovoid of stones was formed, and then some of the earth was scooped out from inside the fireplace. In the fireplace was a 10-cm thick layer of soft white ash. Below this was the clay and oyster-shell bottom of the fireplace. Many burnt bone fragments were found in the soft white ash.

From the floor and the accumulated deposit within the dwelling came a variety of items including many decorated vessels, net weights, stone axes, stone arrowheads, and bone items. Among the bone items were harpoons and drills of every shape, piercing implements, and decoratively carved pieces of bone. The bones of a deer and the jawbone of a dog were found on the floor of the dwelling.

Excavated Items

Stone implements included those made by chipping pieces of obsidian or flint and those fashioned by polishing and grinding crystalline shist and green-colored rock. There was a great variety of bone implements and earthenware, while spindle whorls, ornaments, and carved items were plentiful. Many animal, fowl, and fish bones, as well as a variety of shells were found. But not one item associated with the metallic period was found, nor were any high-footed earthenware vessels associated with early iron-age sites unearthed. A brief description of artifacts by type follows.

Earthenware. A precise distinction could be made between the pottery from Cultural Levels 1 and 2. The flowerpot shaped *tanji* was overwhelmingly numerous in Cultural Level 1, with a considerable number of small *taejop* (large bowl) also evidenced. In Cultural Level 2, black polished vessels were the overwhelming type found. Some flowerpot shaped *tanji* were found, but the principal forms were a *tanji* (small pot) resembling a water jar, *chopsi* (dish), *taejŏp* (large bowl), and *posigi* (small bowl). There was practically no design on the black polished vessels, while many of the *tanji* had a furrowed design around the lip, and there were some which had raised designs around their mouths. There were also many polished, red-colored vessels which had been painted red and then highly burnished. There was a great difference in the form of the earthenware from cultural levels 1 and 2. Representative of the plain earthenware were *tanji, posigi, taejŏp,* and *chan* (cup).

Earthenware from Cultural Level 1:

Cultural Level 1 was very thick, and because there was some confusion in the strata, for purposes of discussion, the earthenware from the floor of the dwelling site and from the accumulated deposits inside the dwelling site will be lumped together.

Tanji and *posigi* were found both in the accumulated deposits and on the floor of the dwelling. The *tanji* were flat-bottomed vessels of a height of 20–28 cm, with the diameter of the base being 10–15 cm. The mouth was about twice the size of the base, giving the vessel a flowerpot shape. The walls of the vessels were thick at the base but gradually thinner towards the lip. The thickness at the base was about 1.8 times the thickness at the mouth. The vessels had reddish and blackish spots. A pliable clay was used, and fine sand was mixed into the clay. Slightly below the lip and extending almost to the base was a decoration of fine parallel lines about 2 cm in length, horizontally oriented. There were also vessels with a similar decoration, but with lines running obliquely. Different kinds of instruments were used to make the different designs, as some lines were drawn very sharply while others were broad. Other designs included a disorderly arrangement of short lines that reminds one of the larch-leaf design found on the comb-ceramic ware, except that the latter is an orderly arrangement.

Four or five *tanji* with comb-ceramic designs made by impressing a manytoothed implement into the clay were also found. The points of the "comb" implement used to decorate the vessels were not sharpened but were apparently flat, four-cornered tips. A twisting design had been impressed horizontally.

Very few *posigi* were found, and all of them were coarsely made. The form was similar to the *tanji* with these dimensions: height, about 7 cm; diameter of base, 4 cm; and thickness at the base, 1 cm.

Cultural items found outside the dwelling site of Cultural Level 1, especially those found far above the shoulder line of the dwelling, will probably enable several distinct cultural levels to be determined in later excavations. In the upper portion of Cultural Level 1, close to Cultural Level 2, an unusually wide, flower-pot shaped *taejŏp* (large bowl) was found. The height of the vessel was 12–15 cm, and the base was only one-third the diameter of the mouth. Some *taejŏp* found in this area were decorated, and some were reddish-black without decoration. The decorated vessels looked exactly like examples found at a neolithic site at Nongp'o-ri, Ch'ŏngjin, North Hamgyŏng Province and at Site 1, Kullaskkaya (phonetic) in the Soviet Maritime Provinces.

The *posigi* (small bowl) were of similar appearance to the *tanji* but, a difference in height was noticeable with the former all being 10 cm or so in height. The color of the earthenware was black. However, there were more reddish-black *posigi* and *taejŏp* than black ones. The earthenware carred a variety of designs. No particular connection was seen between the form of the vessel and the design it carried.

The designs were of six general types as follows:

1. Comb-ceramic larch-leaf design. This design is widespread and found in neolithic

sites in Korea and northeast into Siberia. Diagonal lines are drawn lengthwise over the entire body of the vessel giving an impression something like a larch-leaf (Fig. 2). Another type of comb-ceramic larch-leaf design is made with an implement like a toothed-comb, and the strokes are shorter than the usual larch-leaf design.

2. The upper half of the vessel is decorated with a mixture of lines and dots. The dots are arranged in triangles with every other triangle upside down. Between the triangles, five or more parallel lines are drawn (Fig. 3). On some of the larger vessels the design was carried onto the lower portion of the vessel, but the triangular arrangement was not closely followed (Fig. 4).
3. Practically the entire body of the vessel was decorated with parallelograms with lines slanting in contrasting directions. A somewhat similar design has vertical rows of Vs with the lines of Vs slightly overlapping (Fig. 5).
4. An impressed row of small scratches circled the upper third of the vessel, apparently impressed by a four-toothed "comb" implement. The lip of the vessel curved slightly outward, and a row of dots was stippled around the lip (Fig. 6).
5. The upper two-thirds of the vessel was decorated with parallel rows of short, incised marks made with a two-toothed "comb" implement. These pieces were generally black in color with the lip recessed. About 2 cm below the undecorated, recessed lip, a raised band decorated with a single line of dots girded the vessel (Fig. 7).
6. Spiral design. The form of the vessel was more sophisticated than the comb-ceramic ware. A wide body with the lip curved outward distinguished this small *tanji*. The spiral decoration was that of a linked series of inverted commas or a lazy-S series, enclosed in a band by lines above and below (Fig. 8). This is the first piece of such earthenware ever found in a Korean prehistoric site. It appears similar to vessels found in neolithic sites located along the Amur River. Several sherds with a similar decoration have also been collected in the area of Kŏmun-gae Pong, Yusŏng-gun.

Several sherds of earthenware with a lightning-flash design were also found. Small circles were also found incised on some of these sherds, apparently with the leg bone of a bird. The sherds appeared to be the same quality of earthenware as that with the spiral decoration.

An oak-leaf design was found on the bottom of some vessels (Fig. 9) while a sherd of the inside bottom of a vessel from Dwelling Site 3 carried a pattern of stamped impressions.

The upper sections of Cultural Level 1 contained chiefly vessels with designs 3, 4, and 5, types that were wholly absent from the floors of the dwellings and the accumulated deposits inside the dwellings at the lower section of Cultural Level 1.

Earthenware from Cultural Level 2:

The common pottery types in Cultural Level 2 were red painted pottery and black pottery without decoration.

The red painted vessels were, for the most part, small *taejŏp* or *tanji*. A complete *taejŏp* was found in Dwelling Site 2. The vessel was made with an extremely pliable clay and the thickness of the walls was 2–2.5 mm. Among the red painted vessels was a small round *tanji* with a long neck. The red painted vessels were all highly burnished and the bottoms of several pieces had been burned black.

The black burnished earthenware was the basic type found in Cultural Level 2. Among

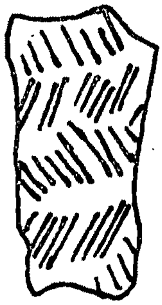

Fig. 2
Larch-leaf design.

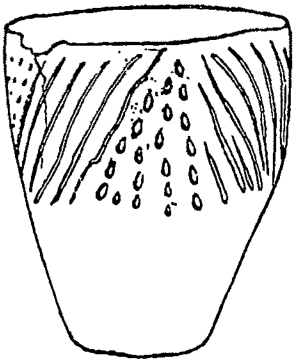

Fig. 3
Design on a *tanji.*

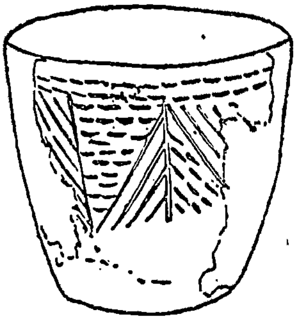

Fig. 4
Design on a *posigi.*

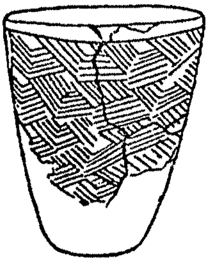

Fig. 5
Overlapping V-design.

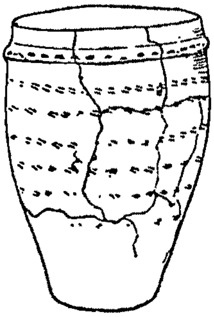

Fig. 6
Incised design on a *tanji.*

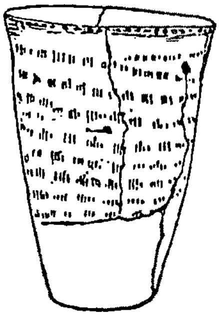

Fig. 7
Incised design on a *tanji.*

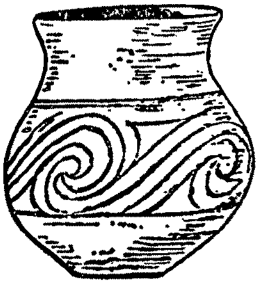

Fig. 8
Spiral design.

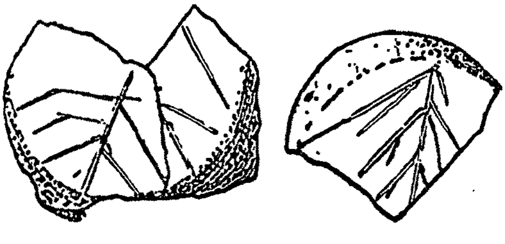

Fig. 9
Oak-leaf design.

the black burnished vessels were *tanji, posigi, taejŏp,* and *chopsi.* The form of many of the *tanji* was quite different from *tanji* found in Cultural Level 1.

The *tanji* were generally as follows: the first type was a flowerpot-shaped vessel with the lip turned slightly outward and with a raised band decorated with a single row of dots circling the lip. The second type was a small grayish *hangari* (large pot) shaped like a water jar. The third type was a long-necked *tanji* with a distinctive body which had been highly burnished, but not painted, and it was blackish in color.

In addition, *chopsi, taejŏp,* and *posigi* came from Cultural Level 2. Among them were black polished items and also some brown pieces. The bottom of the *chopsi* were distinctive, and there were some which had a low foot.

Some comb-ceramic ware also came from Cultural Level 2. However, no comb-ceramic pieces were found on the floor of the dwelling, but rather all came from outside the dwelling site, and so there is little doubt that the comb-ceramic pieces were associated more closely with the deposits of accumulation.

Several spindle whorls were found in the lower portion of the cultural level. The overwhelming majority were oval-shaped. There were 2 pieces found that were fashioned from pottery fragments. Decorations included: fingernail design, design made with a thin point, and a raised design, generally following the designs found on the pottery.

Decorations and items modelled from earth. Found in Cultural Level 2 were 6 pieces of images of female figures. The head portion of 1, 5 portions of the body, and 1 complete torso section were found (Fig. 10). The head portion was flat and the jaw portion was pointed. Three round holes were bored into the head, representing the eyes and mouth. A slender neck connected the body and the head. Two holes had also been bored in the neck, probably representing ears. The body resembled a statuary bust, and two breasts were indicated below the shoulder line, symbolizing a woman. One intact, half-finished figure appeared to be a "neck" between a head and body; however, neither breasts nor face were delineated. Only 1 other similar figurine is known, and it came from a site at Ch'ongjin, Nongp'o-ri; no other known finds similar to these have been discovered in Korea or the bordering regions of the Soviet Maritime Provinces. However, a similar item of bone was found in Cultural Level 2, and it will be described in detail later with other objects of bone.

Several rings and beads made of earth were also unearthed. Most were broken, and it was impossible to ascertain their original forms, although the cylinder beads made of earth had a length of 3–5 cm.

Stone items. The stone items were chiefly made of flint, obsidian, clay-slate stone, and a green-colored sedimentary rock. Other stone used included pumice. Many obsidian items came from the upper portion of Cultural Level 2, but none from the lower part of Cultural Level 1, and it is especially notable that not even one obsidian item was found in Dwelling Site 3. There, instead of obsidian items, items made of a hard green-colored stone, crystalline schist, and diorite were found. Representative of the stone items were arrowheads, axes, adzes, drills, hoes, spearheads, knives, etc.

Arrowheads (Fig. 11):

Obsidian and clay-slate stone were the materials used. These arrowheads had been made by chipping, and there were many which were then further worked by pressure flaking. Some of the clay-slate stone arrowheads had honed edges. The form of the arrowheads was generally the same in the upper and lower portions of the cultural strata. Representative

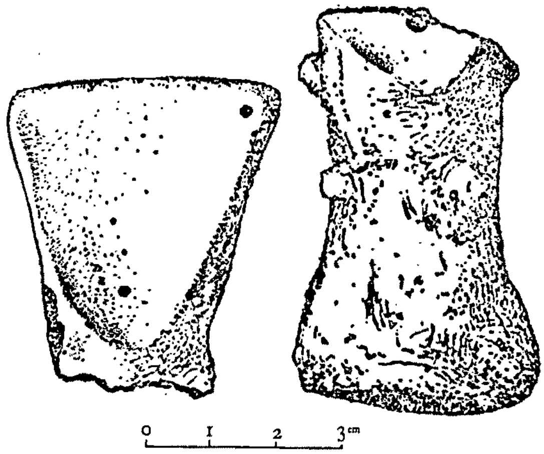

Fig. 10 Female figure of earth.

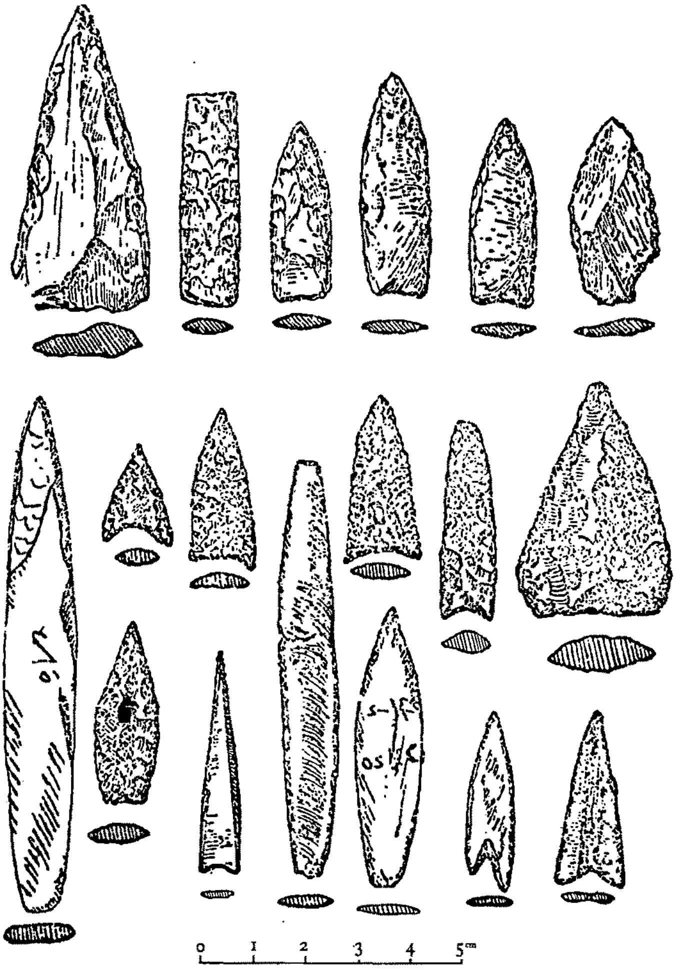

Fig. 11 *Top*, rough hewn arrowheads of flint; *center*, arrowheads arrowheads of argillite. of obsidian; *bottom*, polished.

forms of the arrowheads were a leaf-shape and a long isosceles triangle. Among them were both notched and convex bases with the majority being notched.

Among the polished stone arrowheads were those which in cross section were hexagonal and those which were lens-shaped. Two of the clay-slate stone arrowheads were grooved on both sides; these pieces came from Cultural Level 2, and not one of them was angular in cross section.

The arrowheads were 1–5 cm in width and 3–4 cm in length. Some had a length exceeding 8 cm, but these were probably used as piercing implements. Some of the piercing tools made of clay-slate stone were round in cross section like a drill, and a handle area had been fashioned by flattening both sides of one end. Many piercing tools made of bone were also found.

Axes and adzes:

In comparison with other tools, there were very few axes and adzes found. Only 25 were found in this excavation, and the majority were fragments of blade or body. Only 10 complete items were found while about two-thirds of all the axes came from Cultural Level 1. A brief description of the types of axes found follows:

Axe Type 1 had a broad blade, but the body gradually narrowed towards the blunt end; some even ended in a point: 3 axes of this type were found in Site 1, Cultural Level 1. A chisel was found together with the axe. The chisel was made of a soft green stone that was flat on one end and round on the other. The blade of the chisel was convex in cross section; it had a length of 7.5 cm, width 3 cm, and a thickness of 1 cm. The cutting edge was honed in a single direction. The axe found with it was sharpened on both ends and came from the highest portion of Cultural Level 1. The size was similar to the other axes; length 9.5 cm, width 4.5 cm.

Axe Type 2 from Site 2, Cultural Level 1, was found on the floor of Dwelling 3, at the lowest portion. The cutting edge and the body were of the same size, but the body gradually narrowed towards the blunt end. However, it was not pointed like the first axe type. Both edges had been elaborately honed. A greenish rock-crystal was the material used. In cross section it had four angles, and in size it was a bit shorter, but generally similar, to the first type. The majority of these were made of a hard greenish rock or of sandstone and most were in fragments.

Axe Type 3 was found in Cultural Level 1, Site 2, Cultural Level 2 at the point of contact with Cultural Level 1. The form was similar to Axe Type 2, but the edge was slanted to one side, and in cross section it was lens-shaped. Judging from the appearance of the accumulation in which they were found, I assume that they belong to Cultural Level 1. Similar axes have been found in comparatively similar neolithic sites in northeastern Korea, in the Soviet Maritime Provinces, and in other bordering areas. This third type of axe was cylindrical. It was larger than the other two types, and in cross section it was round or lens-shaped. Like Type 1, the body gradually narrowed, proceeding away from the blade.

Some 10 axes were found in Cultural Level 2. In Cultural Level 1, many axes resembling Types 1 and 2 were found. However, there was a difference in size; the axes of Cultural Level 2 were much larger than those of Cultural Level 1.

A lone example of an axe 26 cm long came from the upper part of Cultural Level 2. It was round in cross section, and no other examples were found that were longer than this one. Among the axes found in Cultural Level 2 were many large axes of a thickness of

2–3 cm and width of 7–8 cm. Although all were broken, they were generally over 15 cm long.

Several fragments of adzes, chisels, and scrapers made from hard, greenish rock-crystal or clay-slate stone were also found. They were flat and very small in size.

Stone hoes found in the North Hamgyŏng Province area are rough-hewn, and the majority have shoulders, although some examples without shoulders have been found. No hoes were found in Cultural Level 1, but a few came from Cultural Level 2. Cultural Level 2 also produced stone spearheads, stone daggers, stone knives, a stone cutting board, and many flints.

Bone items. In the great quantity of bone items obtained from the excavations, no special differences were evident between types found in Cultural Levels 1 and 2 and, therefore, no distinction by cultural level has been made in the descriptions which follow. Long limb bones, vertebrae, teeth, and horns were the materials used. Drills were especially common. Also found were long slender arrowheads, harpoons, short bone daggers, bone arrowheads, needles, carved items, spoons, ornaments, decorations, and a number of unidentified bone items. The drills were made of vertebrae and appeared to have been easy to handle. Among the drills were some with blunt ends or with ends that had been intentionally squared off, and these were the ones which were decorated.

Some 10 short daggers of bone were found, 2 of which were complete. The general length was 25 cm or more, and the width was 2.5 cm. Long limb bones split in two were used and the edges and end portions were elaborately honed. There was also a spearhead shaped like a willow-leaf which was a bit smaller than the short daggers. This spearhead was also made with a long leg bone split in two; it was worked on one end, and in cross section it was square.

Some 15 harpoons were found, 10 of which were complete. All were barbed—the larger ones generally had barbs on both sides; the smaller ones, on one side only. The tip was blunt and swollen. However, in those with thin bodies, there was only one barb, and the head portion was pointed like a drill.

The bone arrowheads were shaped like a viper's head at the tip. In cross section, the tip was an isosceles triangle and worked to a very sharp point. Generally, these arrowheads were manufactured from animal teeth, especially the front teeth of the mountain pig; the horns and limb bones of deer were also used.

Many longer narrow arrowheads were found that may be divided into two groups on the basis of form.

The first is a type commonly found in sites of the Neolithic or Bronze periods. It is long, slender, and round or rhomboid in cross section; the head is flattened on two sides to fit the wooden shaft precisely. The length is usually 10 cm or more with an overall width of 0.5 cm.

The second type is a big-bodied type of a general length of 15 cm. It has a tip which bulges at the midpoint dividing the tip and the body. The length of the tip is about 4 cm overall, with a width of 1.5 cm or more, while the width of the body is about 1 cm overall. The end of the body is sharp like a drill. Accordingly, the end portion in cross section is close to a rhomboid, and beyond the bulge is a flat body that has four corners in cross section.

Some 20 horn hoes were unearthed from Cultural Level 1. Chiefly, deer horn was used. They were of a length of 15–25 cm and a width of 4–5 cm. Some were round in cross section while others were four cornered. The tip section of one was shaped like a viper's head, and it appeared to have been used as a spearhead.

A large number of other bone items were found including: spoons, knives, tools for decorating, etc.

Decorations and ornaments. A special distinction of the Sŏp'o-hang site was the great number of decorated items and ornaments collected. In addition to the female figures and the bone decorations and ornaments mentioned already, there were a large number of ornaments made of animal teeth, shells, and jade. A brief introduction to some representative items follows.

Bone decorated pieces (Fig. 12) may be divided into three types. First are the figures of women mentioned earlier. These were made with the head separated from the body; the body gradually comes to a point towards the foot. The head was square, and in the center of the lower part of the head was a single hole; in the upper portion were two holes. These are believed to represent the eyes and mouth. Seven holes had been drilled about half-way down the body in a sort of circle; inside the circle was a single hole. The piece appears to designate a female figure. It is interesting to note that the face has been decorated with three holes, the same as the face of the earthen female figure.

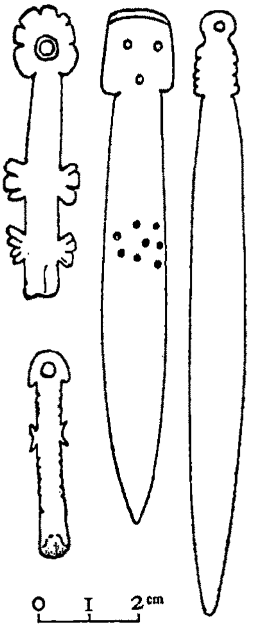

Fig. 12 Carvedpieces of bone.

Another sculptured piece resembled a decorative letter opener. The tip was sharp and the head portion was carved. Here the head was small and the neck shortened, and below that the breasts were indicated. The head had a hole bored through it, and lines had been carved on the breasts on both sides, giving them a wrinkled appearance. The length was 11.5 cm, and the piece was no more than 1.5 cm wide. This also appeared to be symbolizing a female figure. The basis for this assumption is that there was a large symbolic spot below the waistline of the figure.

Two other pieces were found, but only the upper portion remained of each. Like the second type mentioned above, a short neck divided the head and body, and below that were two pairs of "wings." The round head had been notched, and a hole had been bored through it. The "wings" were also notched in two or three places. Many of these decorated items came from Cultural Level No. 1. A few came from the lowest portion of Cultural Level 2, yet it would appear that they probably all belong to Cultural Level 1. A number of other decorated pieces whose use was unclear were also unearthed. Among them was a piece of deer horn decorated with delicate lines with a hole bored through one end.

Representative ornamental items included a variety of pendant ornaments made of the teeth of dogs, pigs, and other animals, and 8 small rings made of nephrite and marble, and 3 bracelets made of shell. The rings of nephrite and marble would seem to be clothing ornaments, if one compares them with other examples found in tombs.

Other items. Animal bones constituted 35 percent of all the animal and fish bones and shell found. Identified thus far are: dog, pig, deer, bear, whale, and a variety of fowl. A variety of bones and the skulls of pigs, bones of dogs, and deer horn came from both cultural levels. Four whale bones came from Cultural Level 2. Among the bones were the following that appeared to be whale bones: a rib bone exceeding 1.3 m in length and a spinal bone 25 cm in diameter. Many very thick—compared to their length—femur bones were found, and they appear to be the bones of an animal with short legs and a fairly large body. Gills and backbones of fish were plentiful, but no investigation has as yet been made. There were also many shells, including those of oysters *(Ostrea circumpicta Pilshry), pap-chogae (Pecten, patiaspecren, yesoenis Jay), paekhap-chogae (Mactra Sachalinensis* Schriner), and a number of snail shells that resemble the trumpet shell.

CONCLUSION

This article is a very rudimentary introduction to items excavated at the prehistoric shell mound at Sŏp'ohang. The site has proven that people lived there for a long period, that is, from the Neolithic Age through the Bronze Age and into the early part of the Iron Age. A variety of dwelling sites were found, and numerous artifacts were excavated from the 3 m thick cultural stratum. By comparing the related quantities of the various items found, we can gain an estimate of the lives of the people who lived there.

From Cultural Level 1 came horn hoes, which were the only agricultural implements found in this level; there were also many bones of dogs, birds, deer, bear, fish, and especially notable are the many long slender arrowheads and harpoons. The people of Cultural Level 1 lived a hunting and fishing life and possessed only a primitive knowledge of agriculture.

From Cultural Level 2 came many horn hoes, stone items including stone cutting boards, long slender arrowheads, etc. We can see by the arrowheads that fishing and hunting still played a comparatively important role in the economy, yet agriculture was becoming a little more important, although it was still very primitive.

Splendid artistic techniques are displayed in the carved items. There have been as yet no sites in neighboring nations that have yielded such a rich variety of artistic items.

The Sŏp'ohang site resembles neolithic and bronze period sites distributed over northeastern Korea, the Soviet Maritime Provinces, and northeastern China. Namely, the basic items of Cultural Level 1, that is, earthenware, stone items, and bone items, show many similarities to items found in neolithic sites at Nongp'o-ri, Ch'ongjin; at Kŏmun-gae Pong in Yusŏng-gun and at Site I at Kullaskkaya (phonetic) in the Soviet Union.

However, in the lower part of Cultural Level 1, the characteristics of the artifacts are slightly different. They could be earlier than the Ch'ongjin, Nongp'o-ri, and Kullaskkaya I sites, although there were a few resemblances in some of the items. The lower level of Cultural Level 1 resembled the Hansi I site in the Soviet Maritime Provinces which is earlier than the Nongp'o-ri or Kullaskkaya I sites; and it resembled the even earlier Charech'iye (phonetic) I site in the Maritime Provinces.

The artifacts from Cultural Level 2 showed a general similarity to the bronze-period site at Cho Island near Najin and the lower stratum of the prehistoric site at Pŏmŭi kusŏk at Musan. Moreover, neither bronze nor iron were found in Cultural Level 2. Accordingly, it appears that Cultural Level 2 falls a little earlier than the Bronze period.

Based on a comparison with sites in the Soviet Maritime Provinces, it is believed that the lower level of Cultural Level 1 began in late 4000 B.C.-early 3000 B.C. Cultural Level 2 is believed to fall in the middle portion of 2000 B.C. The many distinct cultural levels of the site seem to indicate that wandering tribes occupied the site temporarily and then moved away over a period of some 1500 years, with short interim periods when the site was unoccupied. The upper level of the site would, consequently, date ca. 1500 B.C.

Comment

There are two points that should be brought out with regard to the interpretation placed on the neolithic site described above. First, the dating hinges largely on the North Korean archaeologists' distinction of a separate Korean Bronze Age which drew, not from China, but from the north and which is set at 1500–500 B.C. Thus, any site determined to have been free of associations with a metal culture must, as a consequence, have a terminal date of 1500 B.C. or earlier.

The second consideration is that the site must fall within a stage of history already delineated. An interpretation is put forth on page 59 of the article: "Judging by the female figures among the decorated items, we can see that as yet, worship of the female held sway and that this was a matriarchal society."

There is of course absolutely nothing that requires one to accept the interpretations advanced. A more positive basis for dating would be provided by the results of carbon dating or other similar dating processes. It is interesting to note that occasionally such dates have been promised for various sites, but that none has ever been released.

Nevertheless, there is no question of the importance of the shell mound at Sŏp'ohang. The palaeolithic site alone is a major find. And, should further investigation of the site show distinct cultural levels within the two major levels described here, then an excellent pottery chronology covering the period would be possible for this region. It is hoped that a full report of the excavation and the findings will be forthcoming soon.*

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GLOSSARY OF ANGLICIZED KOREAN WORDS USED IN TEXT

McCune-Reischauer Romanization	*Korean Character*
chan	잔
Ch'angdong-ni	창동리
Changgi-myŏn	장기면
Changam-ni	장암리
Cho Island	조도
Ch'ŏngjin	청진
chopsi	접시
hangari	항아리
Kŏmun-gae Pong	검은개봉
Kongju-gun	공주군
Kul-p'o	굴포
Kul-p'o-ri	굴포리
Kum River	금강
Manp'o	만포
Musan	무산
Najin	나진
Nongp'o-ri	농포리
North Hamgyŏng	항경북도
paekhap-chogae	백합조개
pap-chogae	밥조개
Pŏmŭi kusŏk	범의구석
posigi	보시기
P'yŏngyang	평양
Sŏbŏnp'o	서번포
Sŏp'ohang	서포항
Sŏsura	서수라
South Ch'ungch'ŏng	충청남도
taejŏp	대접
tanji	단지
Tongkwan-chin	동관진
Tuman River	두만강
Unggi	웅기
Unggi-gun	웅기군
Yusŏng-gun	유성군

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NAORA, NOBUO

1940 Chōsen Dōkan-chin hakkutsu kyū sekki jidai no ibutsu [Paleolithic items excavated at Tonggwan-jin, Korea]. *Dai-ichiji Man-Mō gakujutsu chōsa-dan hōkoku* 6, 3.

Agriculture and Ritual in the Middle Jōmon Period

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J. EDWARD KIDDER, JR.*

HYPOTHESES AND EVIDENCE FOR MIDDLE JŌMON AGRICULTULE

ARCHAEOLOGISTS have made several attempts in the past fifteen years to demonstrate that some primitive form of agriculture supported the large communities of Japan's central mountainous region during the Middle Jōmon period (Watanabe 1965). The largest of these communities lies in a geographical zone that spans the island of Honshū; the zone is terminated in the east by Tokyo and in the west by the Noto peninsula (see Fig. 1). Until recently no material finds supported this agricultural hypothesis, and those researchers who were skeptical of indirect evidence still grant that only a minor form of cultivation existed in the Middle Jōmon period and that it was of no long-range consequence. The tendency now is for writers who survey Japanese prehistory to admit that there probably was some cultivation in the Jōmon period, but to qualify the admission by adding that there could hardly have been very much (Saito 1961:144).

Since the Iwajuku 岩宿 find in 1949, numerous pre-pottery sites have been discovered and many scholars have accepted the idea of a Palaeolithic stage in Japan; among them, a general realization has "evolved" of the economic conditions that slowly changed and ultimately clearly distinguished the Jōmon period from its predecessor. The discovery of the rich resources of the sea accounted for a somewhat sedentary life for people who lived along the east coast of Japan; the coast was subject to warm currents and was marked by numerous protected inlets; gradually there was an increase in population. The relative comfort of life on the east coast seems not to have stimulated unusual inventiveness and initiative in the population, although ease and comfort may have been conducive to the normal cultural development and undoubtedly allowed for the culture's susceptibility to influences from inland areas. Similar developmental justification does not exist for the inland groups who made striking advances at the start of Middle Jōmon; nor would the simple gathering of more food have encouraged accelerated developments. A climate change that produced environmental improvements may have aided, but the evidence today indicates that there was far more than simply an ideal ecological situation that was previously unexploited by the people.

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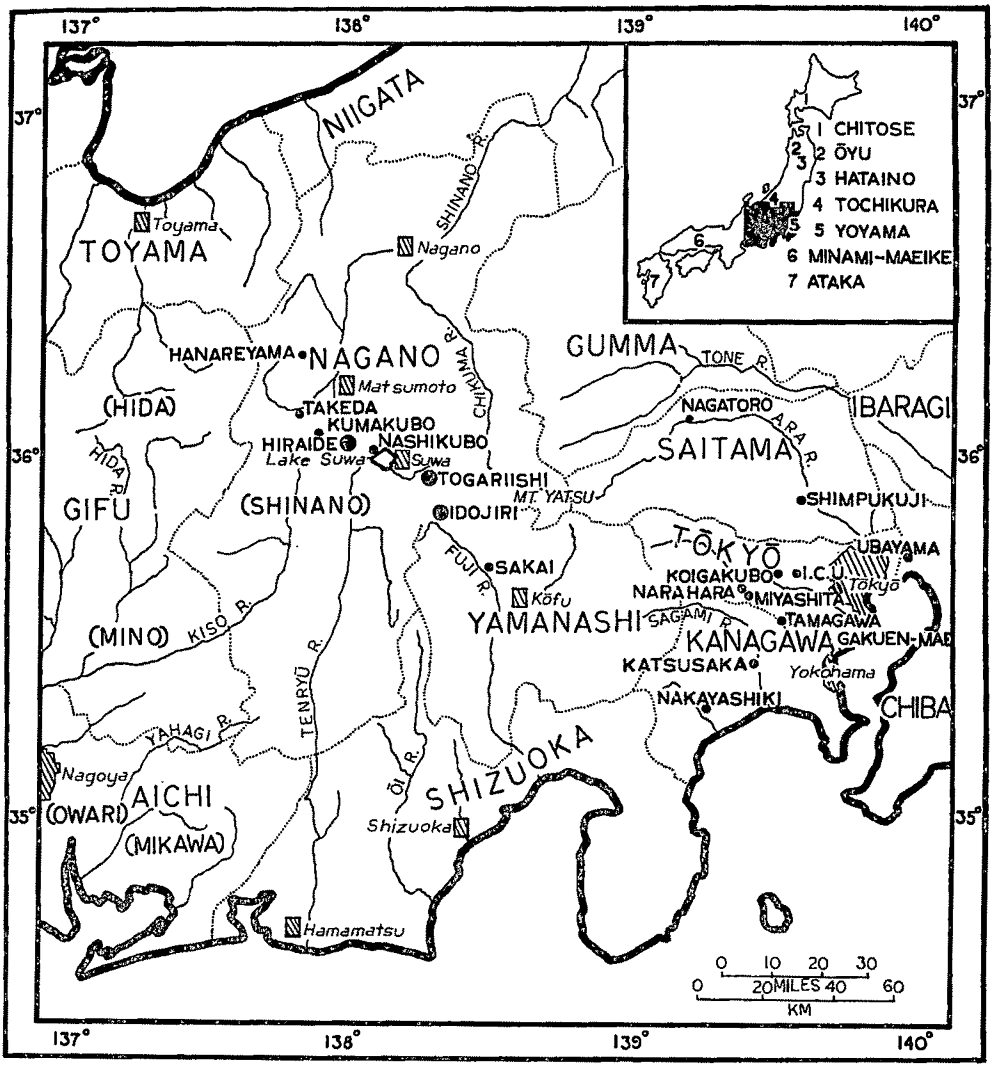


Fig. 1 Map of central Japan, showing sites referred to in text.

Beginning with Earliest Jōmon times, small bands of people seem to have found seafoods generally adequate for their livelihood. The rather small size of the sites and the limited distribution of pottery types speaks for a circumscribed mobility of a population that used only a small fraction of its available resources. Conditions changed in the Middle·Jōmon period: substantially expanded sites in the central mountains mark a much augmented population, and by the time of the Late Jōmon period, the definite increases in the sizes of the coastal shell mounds are evidence of rather large communities. Possibly, groups were contesting for favorable locations, but at least it can be said that contacts between them were more frequent and pottery styles were correspondingly more diffused: the zoned cord-marked pottery of Late Jōmon extends all the way from Hokkaidō to Kyūshū, a phenomenon that could have resulted only from the considerable and rather prolonged proximity between groups of people.

Proportionally, more animal bones have been found in northern sites than in those of the south; especially the bones of the wild boar indicate there was more than an average supplementation of the shellfish diet through hunting. The large shell mounds may at first suggest almost inexhaustible supplies of shellfish complemented by fish, animal meat, fruits, and nuts; but there is also evidence to lead one to believe that since the largest of the shell mounds are situated with fairly level "hinterlands," minor forms of cultivation in the vicinity added a further stabilizing element to the communities and encouraged population growth (Tsuboi 1962: 126).

Sakazume has listed the edibles whose remains have been found in Jōmon sites (Sakazume 1961:235–239). They are as follows: (nuts) walnut *(kurumi)*, chestnut *(kuri)*, horse chestnut *(tochi)*, water-caltrop *(hishi)*, ginko *(ginnan)*, and various kinds of acorns *(konara, mizunara, kunugi, arakashi, ichiigashi,* and *shii)*; (fruits) persimmon *(kaki)*, and peach *(momo)*; (seeds) red (Indian) beans *(azuki)*, and buckwheat *(soba)*; (grains) rice *(ine)*; (leaves, stems or roots) black arrowhead *(kurokuwai)*, and various cucurbitaceous plants *(uri)*; (supplements) Japanese pepper *(sanshō)*, tea *(cha)*, and burdock *(yamagobō)*. Oil may have been made from seeds: hemp *(ōasa)*, sesame *(goma)*, camellia *(tsubaki)*, and yew *(kaya, inugaya)*.

Several of these are now considered to be dubious. This is the case for the sesame, buckwheat and red (Indian) bean (incorrectly called hairy podded kidney bean in Groot 1951:69 and in Kidder 1959*a*:54) from the Shimpukuji shell mound, and the hemp from the Yoyama shell mound. The rice is from the Daigi Gakkoi and Masugata Gakkoi sites in north Japan, associated with remains which some scholars now regard as Yayoi in time. The problem of rice in certain Latest Jōmon sites in Kyushu cannot concern us here.

Less than a decade ago, when Sakazume took up the question of agriculture in the Jōmon period, it was an unpopular subject explored only by the distraught who did not seem to realize that agriculture meant rice cultivation (Sakazume 1957). Most archaeologists retained the traditional concept that the Jōmon period was a time of man's hunting and gathering and they resisted the impact of indirect evidence that has accumulated since the turn of the century; those who did believe that mixed economies must have existed in the Jōmon period were chiefly local diggers of Middle Jōmon sites in the Chūbu whose influence was deflected off the normal patterns of thought in the intellectual centers of the country.

When Ōyama excavated the large Katsusaka 勝坂 site in Kanagawa Prefecture in 1927, he was astonished at the number of stone implements that accompanied the elaborate pottery (Ōyama 1927: 9, 18, 32). He compared the implements with comparable tools from rather similar sites and considered them to be too dull to have been used as axes; he determined that they would have been more serviceable for digging. The decision led him to suggest the possibility of some kind of simple agriculture. Others were quick to point out that Jōmon sites are characterized by a number of pits for houses and that the tools in question could have been used as easily to excavate pits as to work the soil.

Kobayashi had been less defensive far earlier than Sakazume. He spoke in favor of the existence of taro or something similar to it and stated that the problem was not so much whether there was any kind of agriculture in the Jōmon period, but what form it took (Kobayashi 1965: 269, Note 8).

Sakazume was largely ignored because he cast his net too wide. Being too inclusive, he was too imprecise. His approach gave consideration to four points that are still crucial to the problem: (1) which plants may have been manipulated, (2) the residential nature of the community and the availability of nearby land for cultivation, (3) evidence that a high percentage, if not a preponderance, of tools were designed for soil cultivation, and (4) inferences that the society had organized itself to meet the demands of a stable economy (Sakazume 1957).

When Sakazume led off with chestnuts and acorns, his critics opened fire: their definition of agriculture did not include nut cultivation, and it could never be proved how much manipulation of the oak and chestnut trees there might have been to have grown them in the community neighborhood. The nuts may have been simply harvested wherever found. Sakazume used the example of acorns from Inland Sea sites and Shimane Prefecture on the west side as evidence of climatic change. Shimane Prefecture is normally a cold area, and the implication is that a warmer climate had existed in Early Jōmon times, but that the temperature had lowered somewhat by the time of the Middle Jōmon period. Therefore, chestnuts probably were cultivated during the centuries of the cooler Middle Jōmon period and acted as a supplement to other foods. Chestnuts have been recovered from swampy sites, and horse chestnuts and walnuts have been found together in Kantō sites.

The location of sites near springs was "decisive" evidence to Sakazume in determining the community's agricultural character: there may have been forays for game and fish, but the hunters retained a home base because of its ideal location; shell mounds could hardly represent merely camping sites; house pits and thick layers of refuse indicated some length of occupation of the spot, and human burials in shell layers supported the home-base idea; mountain-top sites (such as those on top of Tanna mountain in almost inaccessible territory; see Kidder 1957: 51) contained traces left by hunters who passed through. Therefore, according to Sakazume, sites were chosen by Jōmon man for their proximity to fresh water and for their "striking distance" to nut-bearing trees.

Sakazume presumes that Jōmon man's chief tool would have been a digging stick. Second in importance would have been a grass-cutting tool, probably of bamboo that was used for clearing the ground. Neither, however, would have been preserved in the sites. Ashes may have been used as fertilizer; large jars were made for storage purposes to protect foods against rodents and vermin; and, possibly, the stone circles, such as those at Ōyu in Akita Prefecture (Bunkazai Hogo Iinkai: 1953) acted as kinds of calendars that "told" when spring sowings should take place.

Women's occupations may have included certain ceremonies. The men did the hunting, the building, and the fighting, if fighting was necessary. The figurines recovered are all female and are known in many parts of the world as typical of early agricultural societies. They show that economic stability owed much to the scope of work performed by the women and that the social system was essentially matriarchal.

Beyond these theories, Sakazume assumes that families had some sort of vegetable gardens.

His broad theme attempts to separate the Palaeolithic Age from the Neolithic Age and to draw attention to the contrasting economic structures of these stages. He does not discount the hunting and gathering side of Jōmon life, but he does recognize the complexity of the culture as an attainment of mixed economies.

A sampling of sites in which remains of fruits and nuts have been found would include: Idojiri 井戸尻, Nagano Prefecture, Tōnai 藤内 site, House Pit 9—chestnuts (Fujimori ed. 1965 Fig. 204); Tochikura 栃倉, Niigata Prefecture, House 10—chestnuts in an enlarged fireplace (Ishiwata and Fujita 1961: Plate 11); Minamigata Maeike 南方前池, Okayama Prefecture—peach seeds, various fruits, horse chestnuts, chestnuts, and acorns in storage pits (Shiomi and Kondo 1956); and Korekawa 是川, Aomori Prefecture—peach seeds, walnuts, and chestnuts (Kida and Sugiyama 1932: Plates 5, 6).

Two years after Sakazume had released his trial balloon, Esaka still reflected the relative unpopularity of the idea of Jōmon agriculture in general archaeological circles by calling his article an exploratory one (Esaka 1959). Esaka narrowed the time and area in question down to the early Middle Jōmon period and to the central zone of Honshu—including the extreme western edge of the Kantō and the corresponding region on the west side of the island. Based upon the premise that there must have been good reasons for the sudden acceleration of developments at that time, he accepted as the most logical reason the adoption of a limited form of plant cultivation.

Judging from the numerous pits for dwellings, one may assume that the settlements expanded abruptly in size; they have the appearance of permanence, and testimony to fairly continuous occupation may be seen in the successive pottery types found within any given settlement. Similarities in pottery types that are dispersed from the hilly uplands to the lower and more spacious terraces where springs supply ample running water should show that the population followed the major valleys in what was probably a search for more satisfactory hunting and fishing grounds. More than likely, foraging parties collected seedlings of the horse chestnut tree *(Aesculus chinensis)* in the mountains or highlands and brought them down to lower terraced land for planting. Yams *(Dioscorea japonica)* were cultivated, and would include the *mizu-imo* (water yam), yama-imo (yama, contraction for Yamato, i.e. Japanese, but sometimes written as mountain) in addition to lily bulbs *(yuri)*. Starch was leached out of these roots in the running water of the springs along the terrace edge. Proper selection of the site was therefore doubly important.

Many sites of this Middle Jōmon period yield sandstone and shale tools, a fact that had caught Ōyama's attention when he dug at Katsusaka forty years ago. Esaka also feels that their coarseness and the poor quality of the stone must have made them suitable for little other than the cultivation of tuberous roots, for which finer tools may not have been necessary.

An investigation into the character of many sites in the Mino mountain district (south Gifu Prefecture) was carried out by Sumida (Sumida 1964: 111–175) whose attention was drawn to the major cultural transformation in the area from Earliest-Early Jōmon to Middle Jōmon and the succeeding rapid adoption of rice cultivation when neighboring areas seemed to lag behind. He reasoned that the quick acceptance of this Yayoi trait was owing to the existing traditional practice of cultivation (Sumida 1956: 97). Comparative analysis shows that the early Yayoi trend towards rice raising in the Owari district is contrasted to west Mikawa (also in present Aichi Prefecture) and to the Hekikai plateau where the old Jōmon characteristics remained dominant. This is an areal conformation already suggested as composed of agricultural and nonagricultural regions since the Middle Jōmon period, judged by the presence or absence of quantities of stone implements, standing stones, mortars, and phallic stones (Sumida 1956: 91). Sumida notes the relatively short distances between villages and presumes that the space in between was used for cultivation and that each village was located near a spring. He regards the standing stones—apparently natural stones selected for their shape—as some form of communal symbols of a village (Sumida 1956: 97). Tsuboi points out that Sumida's great stress on mortars as evidence of agriculture can be countered by the existence of concave stones from the middle stage of Earliest Jōmon, coupled with stones that served as grinders, an argument that could be used to imply that some type of agriculture had been practised from a much earlier date (Tsuboi 1962: 123).

Tsuboi quotes Kokubu as believing that Late Jōmon vessels with perforations were used as steamers (also see Nakamura and Teramura 1956), and Kobubu felt that taro was cooked in them (Tsuboi 1962: 124). Kokubu was further impressed by the similarity between the oval-sectioned, ground axes that appeared in the late Early Jōmon period and the hand digging-tool of the Oceanic area. Egami refers to several modern survivals of religious ceremonies associated with taro cultivation, a kind of food that is more obviously ritualized than most (Ishida et al. 1958: 292, Note 79).

Kimura quotes Watanabe as saying that the grain that most likely was raised in the Jōmon period was a kind of millet, a point that will ultimately be determined scientifically (Kimura 1963: 57).

The Idojiri "Bread"

The mounting pressures behind the indirect evidence outlined above were sharpening the archaeologists' sensitivity to the most perishable of materials in sites. It was no accident that the first tangible evidence was recognized by Fujimori at Idojiri, a place that is actually a collection of sites at Fujimi-chō in Nagano Prefecture. Carbonized "bread" *(pan)* was found in March 1960 (Plate I*a*). Identified only as being made of starch, it was uncovered beside a fireplace in Pit Dwelling 5 of the Sori site. Fujimori also pointed out that at the Tōnai site, House 9, a piece of carbonized bread was discovered in the company of many chestnuts (Fujimori 1965: 41–42). Vegetable foods, he concludes, seem to have been one of the important staples at Idojiri (Fujimori, ed. 1965: 139–142; Plate 108, Figs. 205, 206; 1965: 31–32).

After about two years it was possible to restore the fragments of carbonized starch from the Sori house, Pit Dwelling 5, as four cakes and one small piece described as "mochi" shaped (like a rice ball). The cakes measure about 16.5×10 cm (Plate I*a*). The chestnuts of the Tōnai house had evidently been placed on a shelf made of branches over the fireplace. The collapse of the north wall of the house knocked the shelf down, taking the nuts with it.

Fujimori also unearthed a set of vessels: a deep, well-decorated bowl, several deep but coarse bowls, and a pot with a lid. Fujimori reasoned that the vessels' shapes were differentiated according to use, which would thus supply proof enough for his supposition that vegetables were important staples. In other words, they were made for storage, boiling foods, and for offerings (Fujimori, ed. 1965: 94).

Finds of two pairs of vessels and what appeared to be a third (but was so fragmentary that it was unrecoverable in recognizable form) at Location 1D of the International Christian University (I.C.U.) site were all within 170 cm of each other, roughly on an east-west line, 70 cm below the surface, and appeared to show a ritual arrangement, although of uncertain

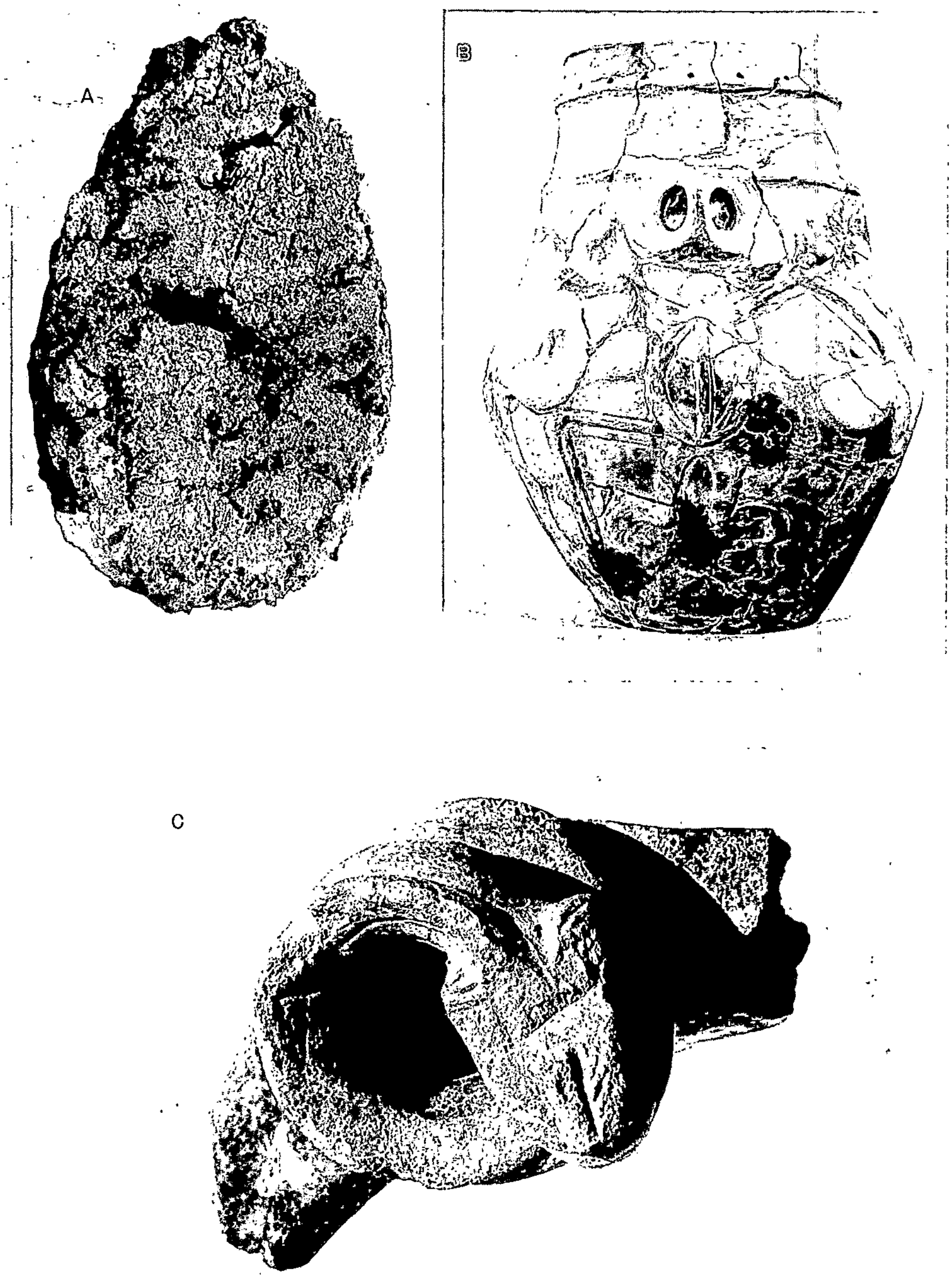


Plate I*a* Carbonized starch "bread," House 5, Sori, Idojiri, Fujimi-chō, Nagano Prefecture. Length, 16.5 cm. (Fujimori 1965*a*, Plate 108, lower.)

b Pot bearing human figure from Idojiri, Fujimi-chō, Nagano Prefecture. Height, 51.2 cm.

c Snake head on rim of vessel from Kami-asao, Katahira, Kawasaki City. Widest dimension of coil, 6 cm.

significance. These pairs consisted of a large jar and bowl (Fig. 2) and a proportionally smaller jar and bowl. The larger set is clearly Katsusaka in type, while the smaller set has mixed features including cord-marking that is more characteristic of the Ubayama type. However, the conditions of discovery left little doubt that the deposit of all the vessels took place at the same time.

More recently, an analysis by Watanabe of the Idojiri bread showed a high content of calcium in contrast to a low content of phosphoric acid. As cultivated plant products should contain this ratio in reverse, Fujimori finds it most difficult to accept the analysis at face value and offers an alternate explanation. The phosphoric acid may have been dissipated and replaced by calcium during the centuries that the bread was buried (Fujimori et al. 1965: 36). Kirihara lists millet and barnyard millet as the least likely to have been used in the making of this bread, taro as a good possibility, but rice, oats, and horse chestnuts as the most likely material (Fujimori et al. 1965: 36). He also points out that a man can easily collect 36 liters (about 38 qts.) of acorns a day, and a family of five can manage for a winter on a houseful of acorns. Oaks give their maximum yield in a three-to-five-year span after reaching maturity, and boiling and drying techniques known today make it possible to preserve acorns for at least a century with a process that provides immunity to the predations of rodents and vermin.

Physical Features of the Chūbu Region

Geographically, the most northerly point of the region with which we are dealing is Lake Suwa at an altitude of 759 m, close to the thirty-sixth parallel. The lake has a circumference of approximately 19 km and is fed by several short streams and underground hot springs whose reputed alleviation of maladies has attracted ailing people from far and wide. Its abundant fish are chiefly carp, gibel, and eel.

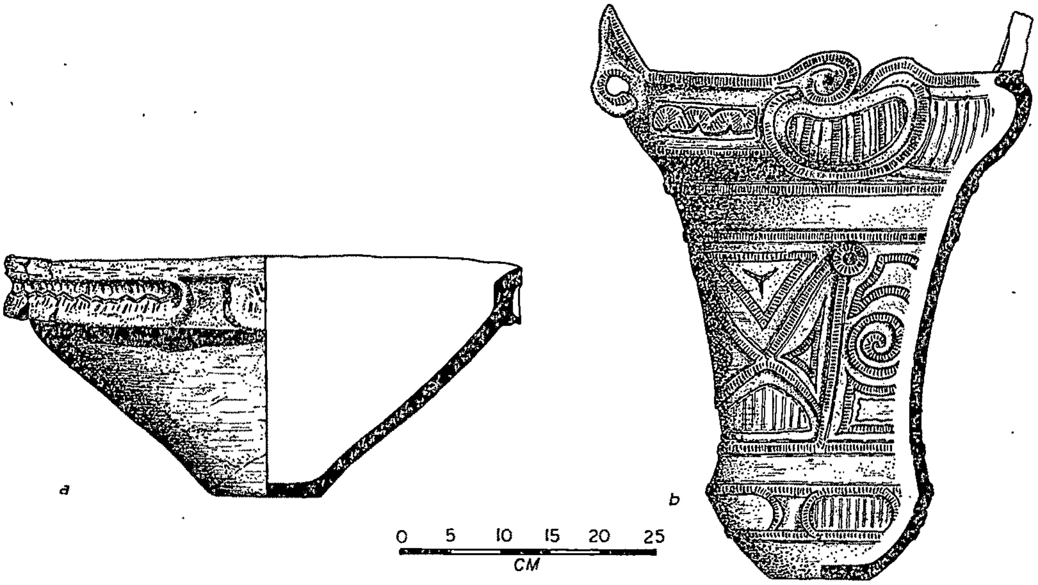


Fig. 2 Bowl (*a*) and jar (*b*) from Location 1D, International Christian University, Mitaka City, Tokyo. Katsusaka type.

Rice-raising occupies the time of much of the farming population, and some localities require terrace cultivation, but in this region and farther south where irrigation is more difficult, sericulture has taken hold during the last century, although in Gifu Prefecture, for instance, the practice is said to be almost a thousand years old.

The watershed, located at Utō Pass, is only about 10 m higher then Lake Suwa, and from there, the flow is either towards the Japan Sea or the Pacific Ocean. Matsumoto City, some 240 km from Tokyo, is situated at the foot of the Japan Alps and is a useful marker for separating the eastern and western cultural zones of this geographical belt.

One of Japan's longest rivers, the 215 km Tenryū, leaves Lake Suwa from its northwest corner and runs almost directly south through Nagano and Shizuoka prefectures to empty into the ocean near the modern city of Hamamatsu. The Fuji River, or its many branches and tributaries, flows through the Kōfu basin, by the modern city of Nirasaki, which is flanked on the east by the Shio River, and through the prefecture of Yamanashi and into Suruga Bay. East of Kōfu spreads the lowland, descending into the Kantō Plain. The Kiso River takes a more southwesterly course, running through Nagano and Gifu and coming out west of the city of Nagoya. Its role and those of its tributaries as an artery and lines of communication from the mountains to the plains was more important in the later Jōmon period than in the Middle Jōmon. South Nagano, the region under question, falls chiefly within a forested zone that includes beech, oak, cedar, and birch. From 1931 to 1960 the temperature at Matsumoto averaged -1.0°C in February and 24.0°C in August, and the annual precipitation was 1063 mm—49 mm in February and 116 mm in August (Tokyo Tenmondai 1965: Kishō, Charts 9, 17). The sites of Hiraide 平出, Togariishi 尖石, and Idojiri 井戸尻 have altitudes of from 800 to 1300 m: Hiraide is 1000 m above sea level; Togariishi ranges from 800 to 1300 m; and Idojiri has an altitude of from 900 to 1200 m.

Some of the large sites on the Matsumoto plateau lie about 4 km apart (i.e. Hiraide, Kumakubo 能久保, Takeda 竹田), and the terrain gives the impression that each community had an operating radius of around 2 km. Higuchi quotes the *Shinano Shiryo* 信濃資料 to the effect that the sites are in close proximity to each other at the foot of Mount Yatsu, at the intervals mentioned above on the Matsumoto plateau and in the Ina valley, and that they are at great distances apart in the Chikuma River valley (Fujimori et al. 1965: 29).

Use and ritual in Middle Jōmon Pottery

Large size and elaboration of decoration is typical of the Middle Jōmon period. Additionally, the following features are worth considering: (1) the appearance of new shapes that were intended to serve specific functions, some of which were apparently ritual, and (2) a new approach towards decoration that includes (a) a minimum use of cord-marking, (b) appliqué coupled with incision work, (c) the inclusion of zoomorphic or anthropomorphic motifs, or both, and (d) a limited use of surface painting. In all cases, these features are alien to Jōmon pottery, although to different degrees. Parts or all of certain of these features become minor contributions to later pottery, but the Middle Jōmon culture of the central mountains can hardly be said to have established or perpetuated any mainstreams of development. Most Middle Jōmon features had lost their distinctiveness by the Late Jōmon period—to the point of making one wonder how an obviously vigorous culture could have been submerged so rapidly.

An increase in the quantity of pottery was not accompanied by improvements in techniques, and the expanded Late Jōmon population demonstrated that a large population did not necessarily require large-sized pots. The size of the pots was directly connected with the traditions of the region and the uses of the pots in subsequent stages of development. The extensive communities that deposited the Late Jōmon shell mounds made consistently smaller vessels than those of their Middle Jōmon predecessors; they discarded some shapes and introduced others. Late Jōmon man, for instance, added the spouted, teapot-shaped vessels; square, legged, and ring-shaped vessels; replicas of shells, and vases and bottles, but had no need for the Middle Jōmon large bowl and pottery stand, and little use for the incense burner. Late Jōmon man's technical changes included proportionally thinner walls and higher firing, along with slightly purer clays.

It has not been pointed out often that early Middle Jōmon man spent a great deal of time making and decorating such elaborate pottery, and it seems unlikely that his intention would have been to pack up and leave soon after having done so. Katsusaka is the least portable of all the Jōmon styles. It had inspired the term *Atsude-shiki* 厚手式 ("thick style") before the modern typological system was devised, and the style was the logical result of an attempt to make larger vessels without noticeably improving the techniques.

Large pots of the Middle Jōmon period (most major sites have yielded them) served well as the central units of fireplaces. Among the new shapes of the Middle Jōmon stage are large bowls, so-called incense burners, stemmed vessels, wide-sectioned jars with neck lip and neck perforations, and pottery stands. What seems to be important here is that the pottery makers were quite unconcerned with the constant improvement of the boiling pot that Esaka has pointed out had preoccupied the coastal people almost as far back as the invention of pottery (Yamanouchi 1964: 162). The refinements are most conspicuous in the Kantō; flat bases were attached to vessels. Throughout the duration of the Sekiyama 関山, Kurohama 黒浜, and Moroiso 諸磯 types of Early Jōmon, modifications were constantly being made to expose broader surfaces to the heat of the fire. The range of shapes is consequently almost entirely limited to variations of the boiling pot. Late Jōmon finds in the coastal zones still show that the problem was not entirely forgotten.

One group of vessels with unusual features is best represented at Idojiri, but is known at Togariishi, Sakai 坂井 in Yamanashi, the Ubayama 姥山 shell mound in Chiba, Nakahara 中原 (not Narahara) in Hachiōji City, Tokyo, and occasionally as far away as the prefectures of Akita and Iwate. These are deep jars with large plain surfaces sometimes bearing red paint, and with a neck perforated by an average of ten holes set off by a strip of clay. Several examples have all or partial figures in appliqué (Plate I*b*). These vessels go by local type names, but all belong to the Katsusaka family or its immediate derivatives, and thus they are early Middle Jōmon.

Yamanouchi passes on the information that Mutō found carbonized seeds of wild grapes in one vessel and decided that such jars were used in the brewing of a kind of *sake,* and Fujimori believes the shape of the neck indicates a lid was to be attached and the vessel should have been used for storing seeds prior to the spring planting (Yamanouchi 1964: 152; Fujimori and Mutō 1962). One jar found as far north as Morioka City by Kusama and Yoshida had a fire-weakened lower body that the excavators interpreted as the part of the jar that was nearest the coals as it was suspended over a fire by cords that passed through the neck holes (Kusama and Yoshida 1960: 7).

Esaka is convinced these vessels were used to store starch that had been removed from the roots of ferns, chestnuts, horse chestnuts, acorns, and other plants and nuts (Yamanouchi

1964: 166). Yamanouchi grants the merits of these ideas, but says the vessels must have been intended as drums that were made for some kind of religious activity (Yamanouchi 1964: 152). Skin would have been stretched over the open end and pegged into the holes. The human figures and "hands" must have been suggested by the poses and movements of the participants in the ceremonies.

In either case, as storage vessel or drum, the use was obviously highly specialized, the ritual derived from the need that was served, and the unique decoration made its contribution to the object's effectiveness. I believe both use and ritual must have been concerned with the acquisition and care of food. If Kusama and Yoshida are correct, the ridge protected the cords from the heat of the fire, but their jar is rather far from the cradle, and the finely painted designs, as on the one from Togariishi (Kidder 1965: Plate III), would probably not have been done with the expectation of subjecting the vessel directly to the fire. The jars are quite large and both have an unusual shape and an unusual decoration. The prominence of the features mentioned above and their prevalence at Idojiri and Togariishi suggest they are closely related to the rapid rise of this mountainous culture, but there is as yet no concensus on the specific role they played in its emergence.

SNAKE AND BIRD DECORATION

Middle Jōmon's attention to decoration could hardly have been all aesthetically motivated despite what was patently a new artistic attitude. In prior periods, practical considerations came first; vessels had a functional appearance, the decoration acting as no more than a supplement to its effect. Yet, Middle Jōmon man paid so much attention to decoration that it was done largely to the detriment of form. The heads of animals on the rims of Katsusaka-type vessels are well known. They have a primary distribution in Nagano, Yamanashi, and west Tokyo (Plate II*c*), but recently much notice has been taken of what appears to be a Middle Jōmon snake cult (Yamanouchi 1964: 166). The cult's chief exponent, Esaka, points to over a dozen examples of wall decorations, handles, and rim loops that take serpentine forms, are usually notched, and have heads that range from those of relatively recognizable snakes to those that require considerable effort to visualize any serpentine similarity (Plate II*a*).

The earliest appearance of the snake in decoration is in the Nashikubo 梨久保 type of Nagano Prefecture (Yamanouchi 1964: Plate 91) according to Noguchi (Noguchi 1965: 120). The Katsusaka ceramic family uses the snake rather often (Plate I*c*) and on every type of vessel, but it is unknown in contemporary Atamadai 阿玉台 pottery areas (Chiba and Ibaragi prefectures, for instance) where different customs evidently did not call for it.

Most of the representations are from Nagano Prefecture, but one which has been claimed to resemble the *mamushi* 蝮, Japan's only poisonous snake, may be seen on a vessel from Miyashita 宮下, Hachiōji City, west of Tokyo (Yamanouchi 1964: 179, note on Plate 100). Should any rebuttal be sought, it is known that the *mamushi* prefers higher altitudes than Tokyo's, and it is not normally found in the Tokyo area today. As for the degree of representation, Katsusaka designs naturally tend to conform to certain conventions, including the primitive characteristics of grotesqueness and rudimentary appearance, and they do not lend themselves easily to precise identification. Pit Dwelling 2 at the Narahara 楢原 site, Hachiōji City, contained four vessels that bore patterns construed to be snakes, and a nearby house contained another.

The suspension bowl from Fujimi-chō 富士見町, Nagano Prefecture (Plate II*b*), with

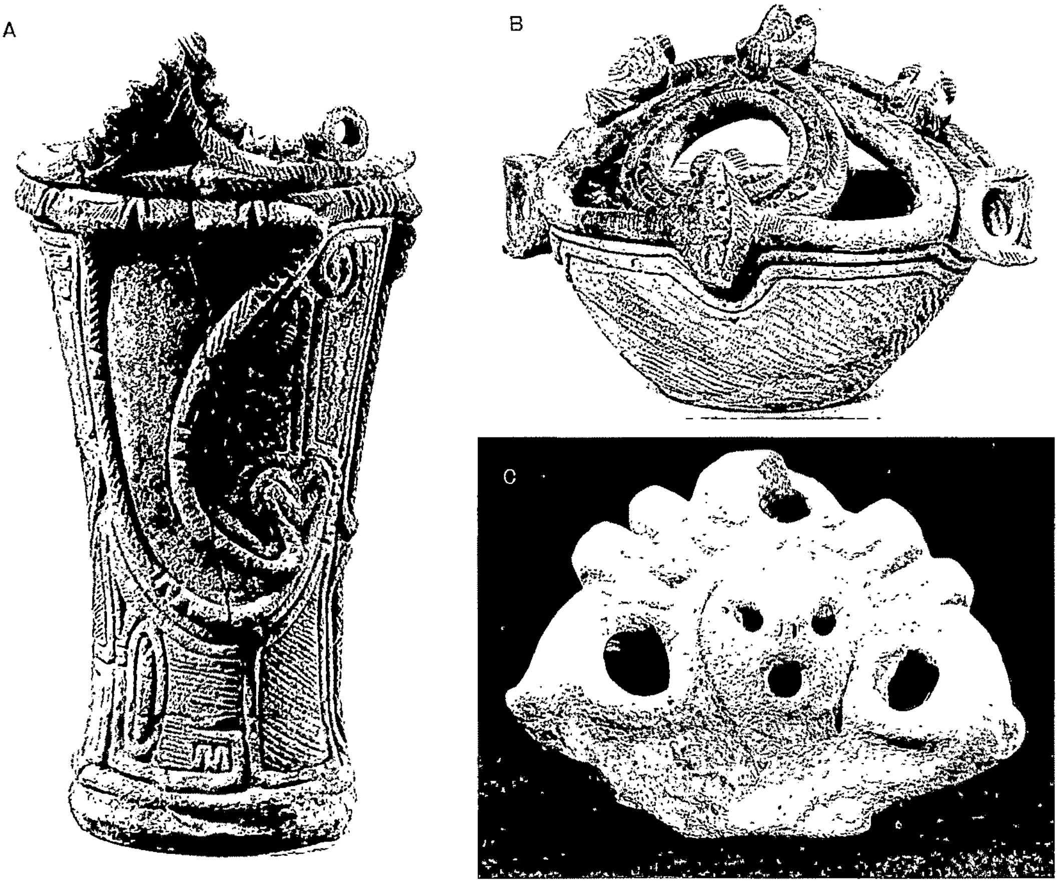


Plate II*a* Jar with "snake" decoration, from Tōnai, Fujimi-chō, Nagano Prefecture. Height, 37 cm. (Yamanouchi 1964, Plate 120.)

b Handled bowl, from Fudasawa, Fujimi-chō, Nagano Prefecture. Height, 16.6 cm. (Yawata 1963, Plate 23.)

c Rim head from Koigakubo, Kokubunji-machi, Kita-tama County, Tokyo. Height, 10.3 cm.

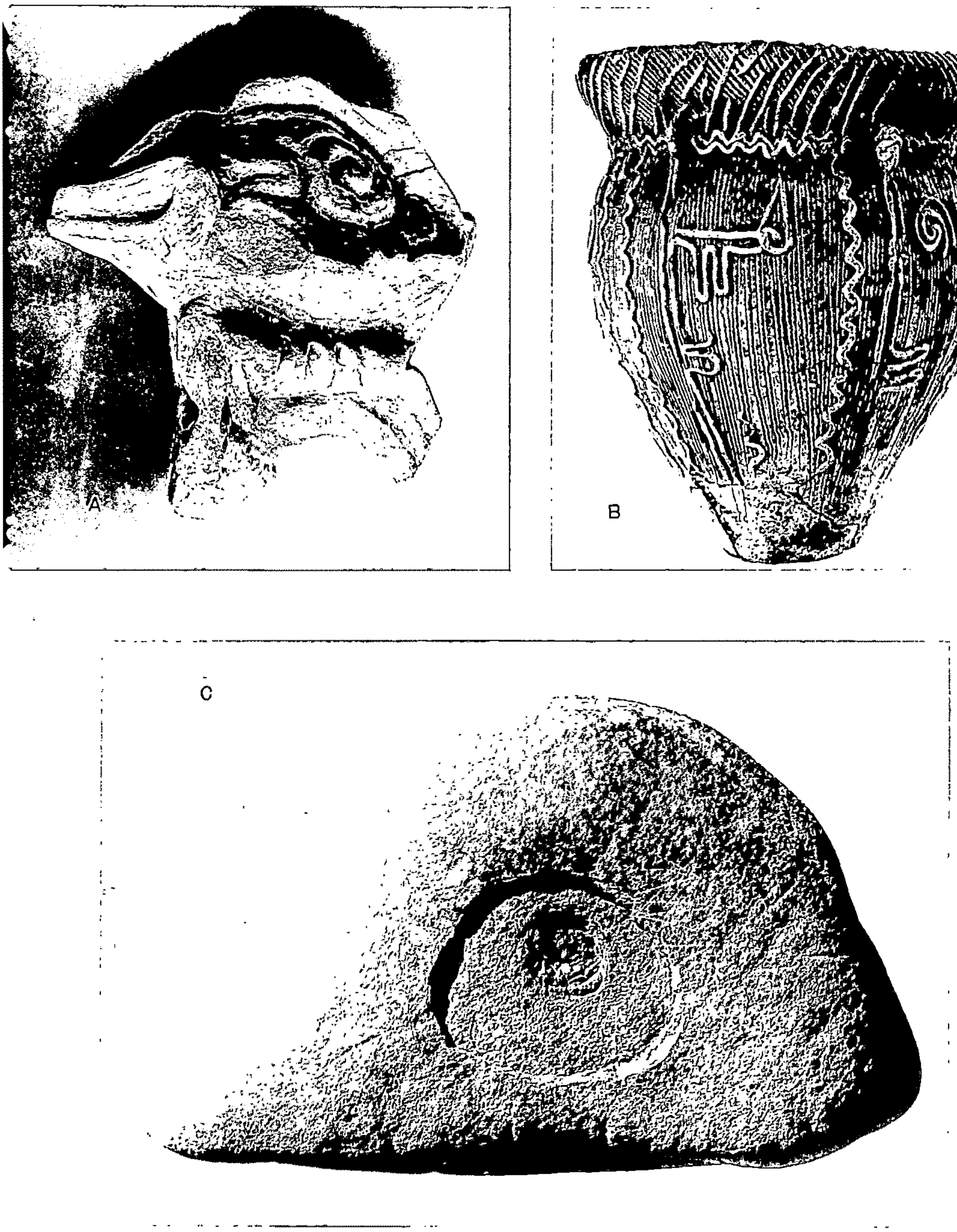


Plate III*a* Broken rim projection in shape of bird's head from Shimohara, Yamagata Village, Higashi-chikuma County, Nagano Prefecture. Maximum width, 8.8 cm.

b Jar with "bird" decoration, from Location 4C, International Christian University, Mitaka City, Tokyo. Height, 25.4 cm.

c Quartzite stone in shape of bird's head, pecked and painted eye, from Location 4C, International Christian University, Mitaka City, Tokyo. Length, 12.7 cm.

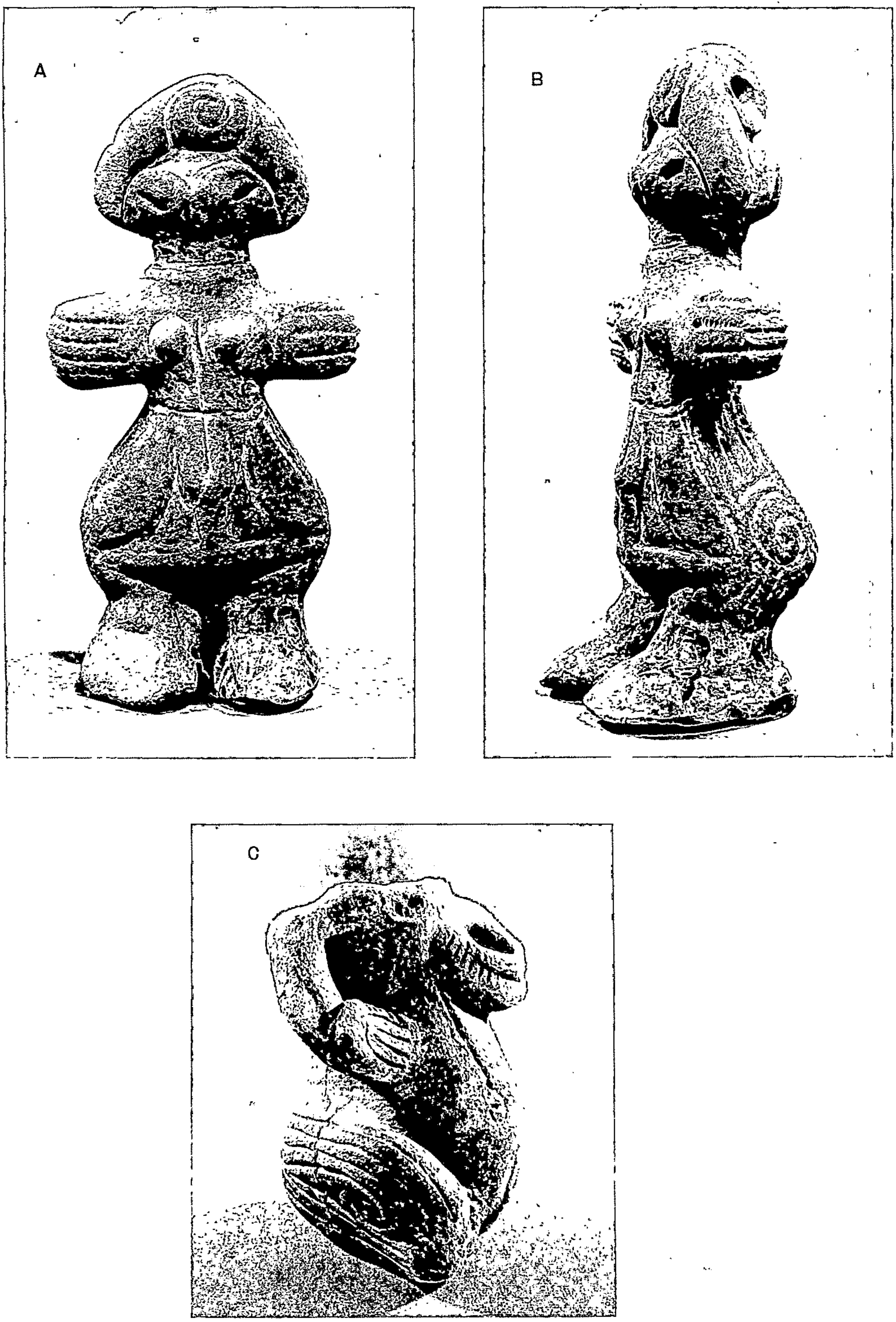


Plate IV*a*, *b* Clay female figurine from Sakai, Nirazaki City, Yamanashi Prefecture. Height, 16.5 cm.

c Clay figurine from Togariishi, Toyohira Ward, Chino City, Nagano Prefecture. Height, 8.9 cm.

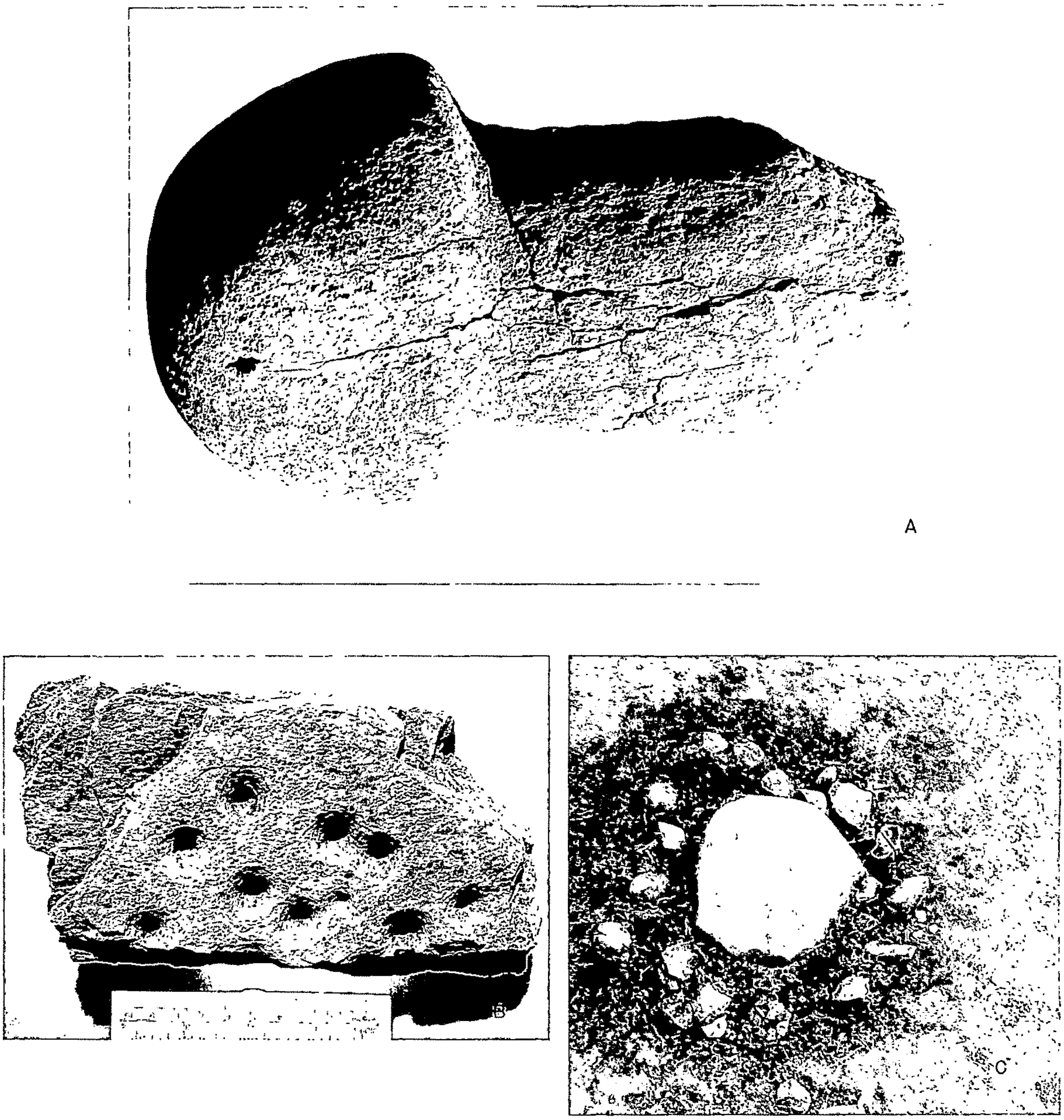


Plate V*a* Quartzite phallic stone from Location 20, International Christian University, Mitaka City, Tokyo. Length, 11.2 cm.

b Chlorite-schist stone used for making fire, Location 4 Trl, International Christian University, Mitaka City, Tokyo. Length, 21.6 cm.

c Cluster of stones, Location 15, International Christian University, Mitaka City, Tokyo. Widest dimension, 53 cm.

three elliptical figures on one side and one on the other, finds observers divided in their choice of frogs or snakes (Noguchi 1963). To Esaka (Yamanouchi 1964: 166) and me, they resemble slugs. At one point, Esaka carries his argument so far as to say that if the principle were to be followed up, it might be conceivable that all Katsusaka decoration was derived from snake forms (Yamanouchi 1964: 166). He concludes that the economic stability that resulted from primitive agriculture allowed the people to develop this unusually high level of pottery manufacture, and that snakes and frogs came to be associated with the earth and its yield and were venerated as forms of spirit life (Yamanouchi 1964: 167).

Noguchi takes exception to Fujimori's theory that snakes were portrayed on storage vessels in forms of sympathetic magic to utilize the power of the snake and amphibians (Fujimori, ed. 1965: 96); Noguchi believes the idea depends too much upon Middle Jōmon agriculture (Noguchi 1965: 122) and that the decorative snakes and other animals of the Middle Jōmon period are totems and were not necessarily associated with agriculture.

The great majority of rim heads (Plate II*c*), with their long pointed noses and slanted eyes, seem more rodent or feline than reptilian. I once suggested that they are rodent, feline, and canine, and that they reflected some simple pattern of totemism (Kidder 1957: 30, 47). Since one rim-head from Sakai (Hosaka), Yamanashi Prefecture (Kidder 1959*a*: Plate 18) has a pair of "arms," it should therefore be eliminated from the reptilian category and, in the process, take the others with it. In other words, snakes may be a clue to the meaning of much of Katsusaka decoration, but one can avoid delirium tremens by taking a broader view of these motifs.

Not all appear snake-like to me (Plate III*a*), and as the snake motifs moved out of the mountains and were absorbed into other decoration in the more coastal areas, they lost more of their snake-like character, became progressively more bird-like, and at the same time, more abstract (Fig. 3). It may well be that the initial reason for using the motifs was lost sight of as the designs were transplanted and nurtured by other people. Most subhuman "creatures" or motifs in Katsusaka-family pottery decoration are three-fingered. To interpret the fingers as birds' claws is not far-fetched, considering that there was a trend towards bird-like figures as the culture shifted and was absorbed. A composite approach towards zoo-anthropomorphic representations is already apparent in the subhuman features.

A vessel of the "basket" type that is slightly later in time than Katsusaka was found at Location 4C of the I.C.U. site, Mitaka City, Tokyo. It bears a pattern on one side that resembles a vertically placed bird (Plate III*b*). Note the head and wing shapes. The vessel is of the middle stage of the Middle Jōmon period and is rather close to examples found at Daigi in Miyagi Prefecture and elsewhere of approximately the same date (Fig. 3). Incidentally, the crisscrossing of the clay strips and the "corduroy" surface have long been compared with wickerwork and basketry, from which they were probably derived (Sugiyama 1942: 121); one might add the comment that baskets were probably the principal means for carrying nuts on gathering trips. The basket style of pots also moved towards the coast and lost its distinctiveness in the process.

Kodai Bunka 15, 5, Plate 4, illustrates an undescribed pottery stand that bears large oval holes and a raised figure on its underside; in the caption it is called a snake (Fig. 4). It is not wholly convincing. In aerial view, the figure could pass for a coiled snake; in profile, it is more like a bird's head. The conventions of Katsusaka art are ambiguous; at this stage most observers would call it a snake, but it may be in the Tokyo area where the transformation begins to take place.

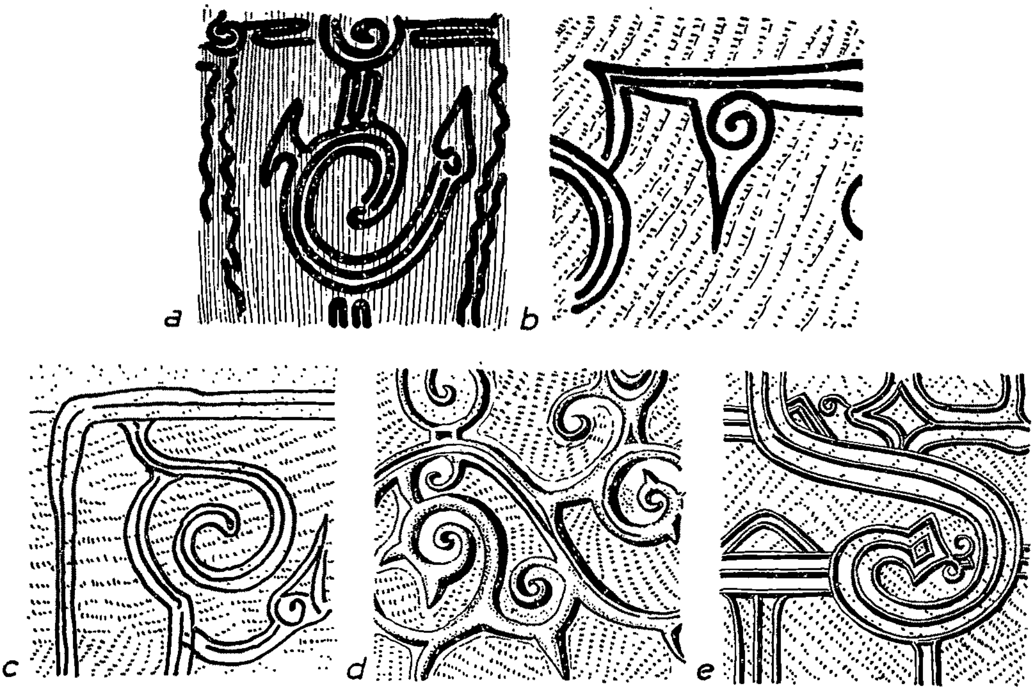


Fig. 3 Bird-like designs on late Middle Jōmon period vessels:
a. Kawakishi, Nagano Prefecture;
b. Nerima, Toyotama, Tokyo;
c. Shichigahama, Miyagi Prefecture;
d. Numazu, Miyagi Prefecture;
e. Matsusaka, Fukushima Prefecture.

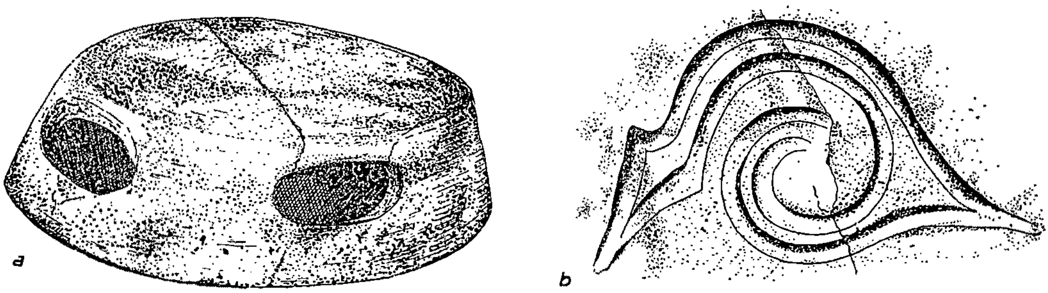


Fig. 4 Pottery stand (*a*) with raised figure on underside (*b*) from Tamagawa-gakuen-mae, Machida City, Tokyo. Diameter of stand, 25.6 cm; width of figure, 14.5 cm. Katsusaka type.

Animal motifs may have been thought of as protective of the vessel's contents. Human forms are rare; subhuman forms are less rare. There is a subsequent minor history of pots with human-head motifs, paralleling the change in the figurines to fully anthropomorphic types in later Jōmon periods and in Yayoi, in the Chūbu, Kantō, and farther north. Those from which the context is known come from locations that are apparently of a ritual nature and are accompanied by other unusual vessels, or are found in peculiar arrangements. The faces of Yayoi examples bear red paint and rough scratching around the eyes and mouth (Kidder 1965: 82) and may be looked upon as ritual effigies that represent modifications of older forms applied to Yayoi period use.

Japan is not unusual in the survival of elaborated myths, traditions, and customs regarding the snake. Many of the traditions are quite local today and some beliefs accept the snake as benign; others do not. It is commonly a water spirit (*suijin* 水神) guarding crops; it may be female and a fertility symbol associated with childbirth. Husbands take the form of snakes, a practice that is recognized in the oldest surviving written literature. Whether it pertains here or not, the snake has *kamui* status to the Ainu, is regarded as aiding in childbirth, and has been connected with ancestor veneration. Munro speaks of Kinashut Kamui, a spirit chief of the snake tribe (Munro 1963: 108–110), who is instrumental in exorcism, a protector against disease, and a guard of the granary from rodents.

When I used the term canine, it was the fox-like features I had in mind (Kidder 1957: 30). The well-known association of the fox with rice in Inari traditions, acting as the messenger of the gods, is claimed to be ancient. The Fushimi Inari Shrine in Kyoto, the headquarters of Inari shrines, reputedly was founded in A.D. 711. One grants an obvious accumulation of later details in these myths, yet the character of this cult may have found more acceptance in a rice-raising culture if some prior regard for the fox had already existed.

FIGURINES AND RITUAL STONES

The striking proliferation of figurines in the Middle Jōmon period is well known. Earlier amorphous features were abandoned and specific features were exaggerated. The presence of figurines is often said to be proof neither for nor against the existence of agriculture, yet some reason must lie behind their sudden increase in number and explicit detail. Middle Jōmon figurines are facially animal-like, obese, and have very enlarged posteriors (Plate IV). Such ample posteriors are known to have been associated with early European hunting cultures and to have had some connection with the ritual life of animal hunters; but they are not unknown in the Neolithic Age and can hardly be used as argument against figurine development as a result of basic economic changes. Special deposits of figurines are recorded by Noguchi (Noguchi 1959: 135–136, and in Kono 1964: 124–126); they were found chiefly in stone enclosures. Of 13 deposits, 6 are Middle Jōmon, 6 are Late, and 5 are Latest. All 6 Middle Jōmon deposits are from the region under consideration (Niigata 3, Nagano 2, Yamanashi 1), while the later ones reflect the shifting cultural centers, first to the east, then to the north. At Togariishi, for instance, a clay head was found in a jar (Miyasaka and Yawata 1957: 164, Plate 29).

At Tōnai, whether the association was or was not accidental, a head of a figurine with coiled snake behind it was found lying face down near a round stone. Two pots were close by, one of which carried snake decoration (Plate II*a*). All were apparently on the floor of a pit dwelling (Mutō 1963*b*).

Recent writers on the figurines have pointed out the high incidence of breakage among them, much of it apparently intentional and noted that finds of complete examples in which the field conditions are known have all come up within rings of stone (Tsuboi 1962: 125). All of the figurines at Hiraide were discovered in one round house that had been destroyed by fire (Ōba 1955: 48, Plates 11, 12, 64/1–6; Fig. 17). The implication drawn from the figurines' fragmentary condition is that by breaking them, man destroyed their magical value. Special deposits must have been simulated burials, whether the figurines were whole or not, that, like the placing of an infant's bones in a hollow figurine (Esaka 1960: 131), or the deposit of the clay head in a jar, symbolized a return to the womb, that is, to Mother Earth, in a context that would have meaning only to people who had a constant dependence upon the soil for their livelihood.

Esaka says the figurines are all female (Esaka 1960: 3), although it is apparent that a great many lack all indications of sex marks. Two published examples are claimed to be male; one figure is from Yamanashi Prefecture of Middle Jōmon (Nagamine 1951), the other from Chitose 千歳, Hokkaidō, of the Late Jōmon period (Ōba 1965). There is an additional one from Idojiri that looks male and Fujimori admits that some observers think so (Fujimori, ed. 1965: 131, Fig. 199/14). These figurines in themselves may not be significant, but what is important is that through them, male symbols made their first appearance at this stage (Plate V*a*). Normally, male symbols materialize when societies become more conscious of the role of the male as he assumes a greater share of the community's responsibilities.

Some stone phalli can be readily distinguished from pestles by their decoration. What the Japanese call *seki-bo* 石棒 stone clubs, range in size from 10 to 100 cm, that is to say, from a size usable for pulverizing foods to a size that could only be symbolic. Shaped mortars of pumice (Fig. 5*a*), sometimes with lip and four short legs, appear along with the older style flat stones used as grinding surfaces. Most sites yield a number of these mortars and similarly shaped abrasive stones that have conical depressions made when fire was friction-produced with a wooden drill.

There are 48 of these pitted stones from one pit house at Ōhata 大畑, an Idojiri sub-site. They are believed by Fujimori to be fire-making stones, but by Mutō to be "nutting" stones (Fujimori et al. 1965: 32). Kaneka speaks of rough and smooth holes and reports such pitted stones in abundance in Niigata Prefecture. He claims that a small pebble placed in a smooth hole can be struck by a rough stone to make an arrowhead with considerable ease (Fujimori et al. 1965: 32). While this technique may have been used, it seems unlikely to me that a stone of ten or more holes was designed for the mass-production of arrowheads.

Several such stones of chlorite schist have been found in I.C.U. excavations (Plate V*b*). The raw material was brought from Hagure, Nagatoro, in the upper Ara River valley, a considerable distance from the Tokyo sites where it appears. One imagines that such stones would have been of little more use in cracking nuts than would a good pair of teeth. Fujimori speaks of his stones as hand-size, usually with two holes to a side, and almost always made of granite or a hard sandstone. He estimates that only one out of 150 is of slate (Fujimori et al. 1965: 32). He is therefore thinking of the stone as being held in the hand with the pits turned down. One of the pits acts as a socket for a vertically rotated stick, and the fire is thus produced against a piece of wood on the ground. He reasons that many were kept outdoors for convenience, since fires were often made to have wood ash available for fertilizer. On the other hand, there is good reason to believe that a fire was kept constantly burning inside the house (Fujimori et al. 1965: 33).

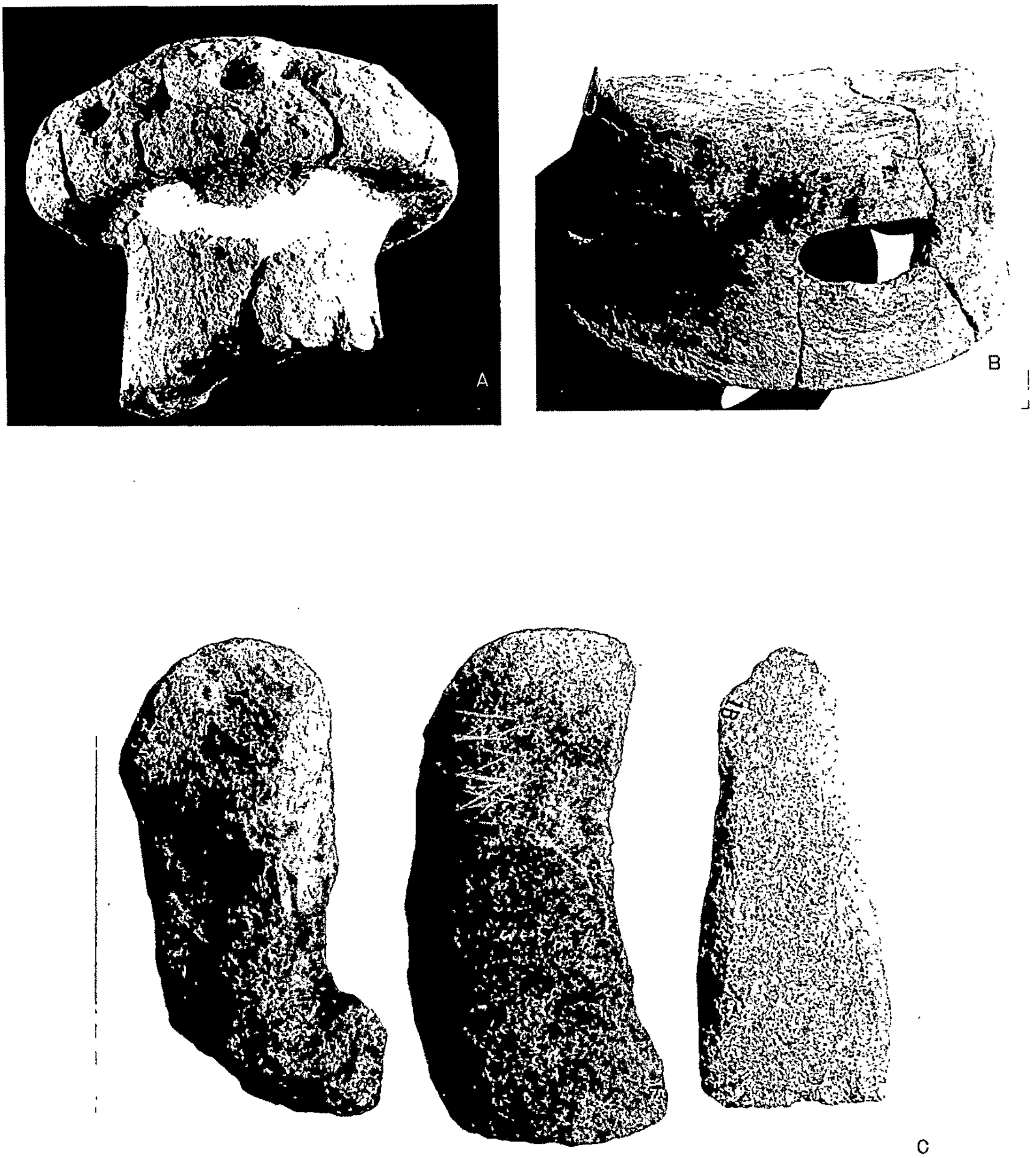


Plate VI*a* Mushroom-shaped hornblende andesite stone, Location 15, International Christian University, Mitaka City, Tokyo. Maximum diameter, 22 cm.

b Pottery stand, Location 1F, International Christian University, Mitaka City, Tokyo. Diameter at base, 17.4 cm.

c Stone tools, Location 1B, International Christian University, Mitaka City, Tokyo. Right and middle: Greywacke standstone; left; standstone with shale fragments. Length of middle tool, 11.85 cm.

Unusual arrangements of stones are known from Middle Jōmon sites. Small stones clustered around a large stone at Narahara were considered to be a grinding table (Gotō 1933: Plate 14). The grouping of stones at Location 14 of the I.C.U. site most likely marked a burial (Plate V*c*). There was no evidence of house floors in the vicinity. Nearby was a large, hornblende andesite, mushroom-shaped stone (Plate VI*a*), in broken condition, that apparently once stood as the center of a pile of stones. Its total height is estimated to have been 60 cm, and the heel is tapered. It is smoke blackened in spots and bears evenly spaced conical holes on its unbroken side. The material is not considered to be native to the Musashino region. Piles of stones have been found in several spots of the I.C.U. site, and two-thirds of a circle of fist-size stones on the Middle Jōmon level measuring 120 cm across its widest dimension was exposed at Location 4 in 1963. Charcoal recovered at Location 21 from under a pile of pebbles that was associated with Atamadai and Katsusaka pottery gave a radiocarbon date of 3140±65 B.C. (Long 1965: 253—incorrectly edited as overlain with 85 cm of gravel, the pile of stones was actually covered by approximately 55 cm of humus); Location 4Q, 400 m to the north, on a bluff 20 m higher, appeared to be slightly more recent material and gave the date of 2620±150 B.C. (Fergusson and Libby 1964: 337, UCLA-279, which omits mention of the I.C.U. site). Other Middle Jōmon dates are the Ubayama shell mound, Chiba, 2563±300 B.C. (Groot and Sinoto 1952: 5), and Ōmiyama, Nagano, 2630±60 B.C. (Long 1965: 253).

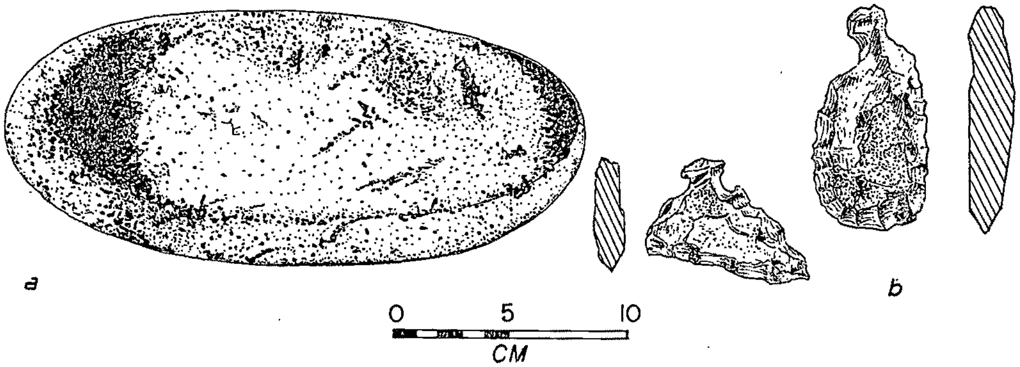


Fig. 5 Pumice stone mortar (*a*) from Inaridaira, Kami-suwa, Suwa City, Nagano Prefecture. Length, 23.5 cm. Middle Jōmon period. Stone "spoons" (*b*) from Fukuura, Yusa-machi, Yamagata Prefecture. Length of right tool, 7.7 cm. Early Jōmon period.

POTTERY STANDS AND SUSPENSION VESSELS

The so-called pottery stands make up a class of objects for which there have been surprisingly few explanations (Figs. 4*a*, 6*a*; Plate VI*b*). Seven stands found at Narahara, west Tokyo, are described as having thick walls, being well polished, and bearing round or oval-shaped holes. Their use is said to be unknown, and the excavators admitted to not knowing which side was up (Gotō 1933: 31). The holes frequently are in pairs, and Yawata looks on the perforated pottery stands as types of primitive wheels (Yawata 1963: 14). He illustrates two from Sakai, Yamanashi Prefecture, one with holes, the other without (Yawata 1963: Fig. 26); the latter is said to be a stand to hold pottery. Two were found at Hiraide, Nagano Prefecture (Ōba 1955: Plates 62/107, 108); each is about 18.5 cm in diameter. One stand has two pairs of holes and is called Kasori 加曾利 E type (late Middle Jōmon) because of its decoration. It came from a trench, not necessarily a house floor. The other stand has no holes, is called Katsusaka type because of its association with known Katsusaka objects, and was found in the pit of a house, evidently in the northwest corner. An examination of these stands has not revealed any rings, scratches, or scrape marks that might have resulted from revolving; the stands themselves would have had to rotate on a kind of support if they were "wheels." The one from the I.C.U. site (see Plate VI*b*) has a smoke-blackened interior, and one sherd that apparently comes from another stand, to judge by the shape of a partial hole in it, bears red paint.

Pottery stands seem more likely to have been stands for jars of special foods, or used as kinds of tables for holding cult objects or offerings. In examining them, one may call to mind the small wooden or lacquer Shinto stands known as *sanbō* 三宝 used for offerings to deities or nobles that bear four, three, or no holes, depending upon the rank of the person using them (Fig. 6*b*); in theory at least, unranked people do not use them. Harada sees the development in *sanbō* from the Fukui 福井 type burial jars of Kyūshū through perforated Yayoi stands of the Kinki to cylindrical *haniwa* with holes, also of the Kinki (Harada 1954: 249, Fig. 47) and tosses in the idea for good measure that the cylindrical *haniwa* should have been substitutes for human sacrifices. Like the contemporary *sanbō,* which have consistency only when recognized within the framework of the ritual, some pottery stands have an overhanging edge but no holes. Others have holes without the overhanging edge. Still others have neither, but in the case of the former two, both the pairs of holes or the overhanging edge serve excellently as lifting devices.

Whale vertebrae in the Kyūshū region have been called the prototypes of such stands by Mishima (Mishima 1961). These are found in Ataka assemblages and are therefore of the Middle Jōmon period. Ataka pottery is fairly widespread throughout the island of Kyūshū, but it is densest on the coast of the Ariake Sea. Whale vertebrae have been recovered from five Ataka sites and Mishima believes markings on them show they may have served as stands during the making of pottery or for drying purposes.

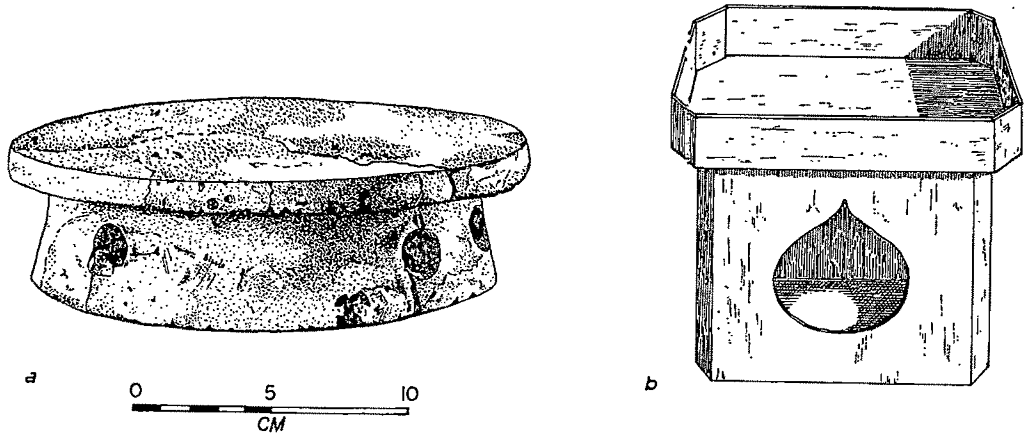


Fig. 6 Pottery stand (*a*) from Idojiri, Fujimi-chō, Nagano Prefecture. Diameter, 19.2 cm. Early Middle Jōmon period. Wood *sanbō* (*b*) used for Shinto offerings.

Suspension vessels (Plate II*b*), that is, round bowls with two, three, or four arched handles, had their development in the Chūbu region. The fact that they were so often found apart from other pottery had long baffled archaeologists. They have been popularly referred to as incense burners. One such vessel was discovered in Pit Dwelling 3 at Idojiri (Fujimori, ed. 1965: Plate 103) and had the remnants of a black wick near the juncture of body and handle and a soot-covered interior. This find led Fujimori to say that all other theories regarding these vessels were now obsolete: the vessels were used as lamps and must have fallen from a post or beam after the house had been abandoned (Yamanouchi 1964: 181, note for Plate 134).

MIDDLE JŌMON STONE ARROWHEADS AND "SPOONS"

The widely used stone implement was a hand-size pebble chipped only as much as necessary to make it serviceable (Plate VI*c*). Most still retain a fairly large nature-smoothed surface on one side. These outnumber by more than twenty to one the arrowheads found in a large Middle Jōmon village site. Ueno measured the relative size of arrowheads in east Japan and reached the conclusion that Middle Jōmon examples in the Chūbu were generally shorter than in north and east Japan and that arrowheads in the same region did not change in size after Middle Jōmon (Ueno 1963). I would like to interpret this to mean that there was no need in the Chūbu to modify this particular kind of point. Fujimori has noted that there are proportionally more arrowheads in small Middle Jōmon sites (Fujimori 1950: 41–42), a situation that implies a greater dependence of the inhabitants of such sites on hunting than on more stable methods of subsistence.

In his study of the stone "spoons" (*ishisaji* 石匙), a vertical or horizontal tanged tool (Fig. 5*b*) said to be designed for carrying, Fujimori points out that such a tool is small in size and of generally hard stone from its first appearance around the middle stages of Earliest Jōmon until Middle Jōmon, at which time, with both types in use, they are larger and rougher and of coarser material (Fujimori 1963). In his opinion, the Early Jōmon "spoons" were probably used as knives for skinning and cutting up the meat of animals, whereas in the Middle Jōmon period, they must have been employed as reapers, for digging vegetables, and for peeling fruit.

THE RITUAL NATURE OF THE VILLAGE

To the younger Miyasaka, the Middle Jōmon culture at the foot of Mount Yatsu may be divided into three successive stages: Early Katsusaka, Late Katsusaka, and Kasori E, known locally as Tōnai, Idojiri, and Sori 曽利, respectively (M. Miyasaka 1965: 346). (Kasori E is often referred to as Ubayama in Western books).

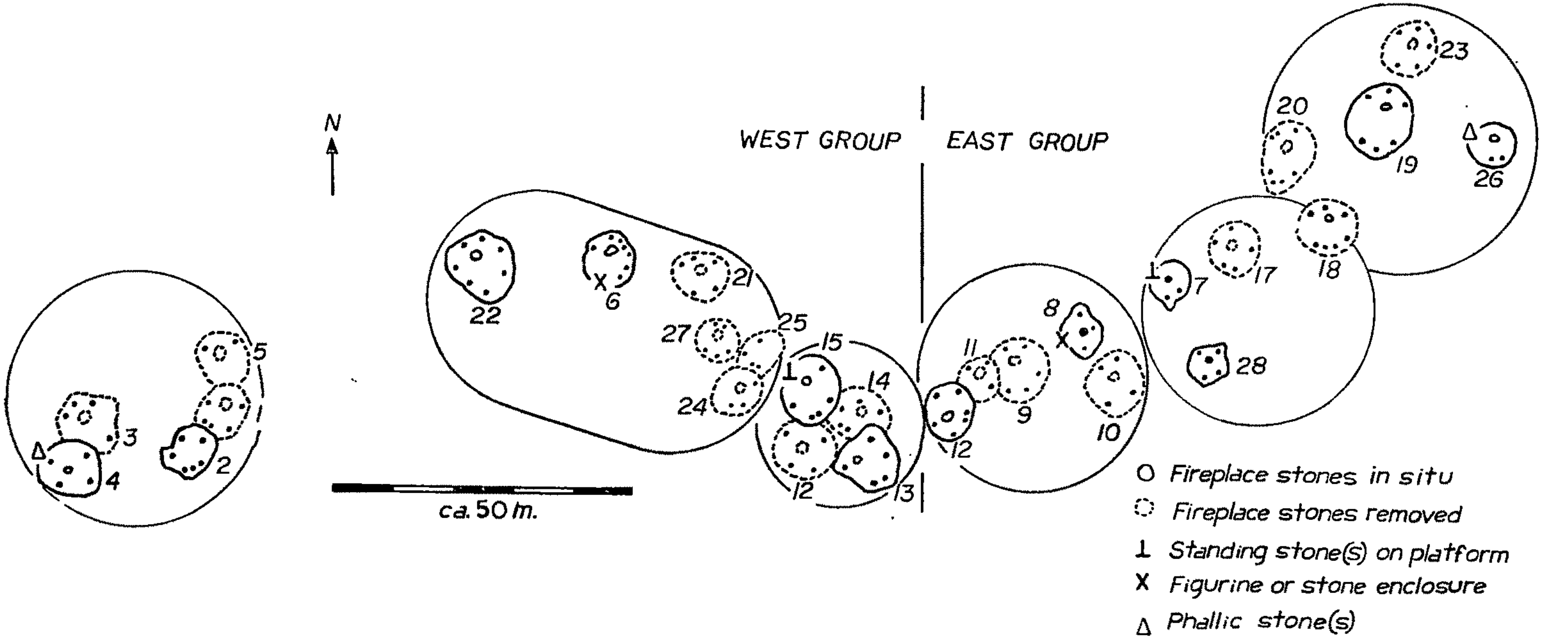
Early Katsusaka had figurines which, to judge by the holes in their torsos or necks, must have been hung in the house (see Kidder 1965: 27 for suggestions that these holes were intended for structural purposes) and rather large phallic stones which stood at certain spots in the village. Late Katsusaka has no figurines in pit dwellings; rim heads are rather many in number and are found by themselves. Kasori E is a stage without figurines (they has spread to the Suwa region by this time) and without rim heads; there are standing stones, stone altars, and phallic stones. In Early and Late Katsusaka, the painted vessels with perforations around the rim served for storage purposes. They became smaller towards the close of this stage and generally disappeared in Kasori E to be replaced by storage vessels buried in the ground. Miyasaka believes this radical change of storage method points to a great difference in the type of food for which preservation was needed.

The Togariishi site is actually composed of several sub-sites or branch villages. From these have come a rather extensive group of pestles, stone phalli, mushroom shaped stones, stone "pillars" of roughly square section, natural stones of suggestive shapes and flat tablet-like stones which stood on "altars" in the pit dwellings. These altars were formed like stone platforms and held the phalli, pillars, figurines, and sherds. The arrangement of the community at Yosukeone 与助尾根 (Fig. 7) is clearer than at Togariishi proper where pits overlap each other in great confusion. There were 28 houses situated on the south side of the plateau. Some pits include fireplaces lined with stones; in others, the stones had been removed. Generally speaking, the houses with fireplace stones were built partially over existing pits, and it is quite evident that stones were taken out of fireplaces for use in later houses. This useful fact has furnished the clue to the time sequence of the settlement's development and the number of houses in contemporary use. When the site was abandoned, 15 dwellings with fireplaces intact constituted the village (Tsuboi 1962: 118–119).

In the view of the excavator, the 28 pits appeared to be clustered in 6 groups. Each group contained both earlier and later pits, and it was noticed that three sets of symbols seem to have been present: a standing stone, a figurine, or the suspected presence thereof, and phalli. One house had a standing stone; this same house and another had stone platforms; one had a figurine in a pot and another, a circle of stones from which a figurine may have been removed; two houses had phalli. Assuming, therefore, that removal took place from one house to another and the family jewels went along, and that these three features represent a pattern and not an accident, the 6 clusters of houses fall into two general groups, one of which lies to the east, the other to the west. It looks as though not only the fireplace stones were removed from House 17, but a hole suggests that the standing stone was also transferred and that House 7 next door was the recipient of both. House 7's fireplace is closer to the side than usual, and the location of the entrance can be presumed from the scheme of the postholes. This led the excavator Mizuno to feel that basic rules controlled the arrangement of a house. It faced more or less south; the altar for the standing stone was at the back on the left, and buried pots, phalli, or stone circles were placed either to the right or the left, but near the entrance. He then assumed that if a house had been occupied by a family, each member had a recognized place. Two paths probably led off from these clusters of houses to converge and continue towards the springs in the valley.

Several other possibilities came in for speculation. For instance, there may have been two family groups, but the division into three subgroups makes this look rather unlikely. Or, in each case there may have been one house for men (phalli), another for women (figurine), and a third for one or more persons endowed with leadership (standing stones). He makes a further suggestion (for which the argument is not clear to me) of a kind of matriarchal system, the male chief residing in the house with the standing stone while others lived in the immediate vicinity. An estimate of the population at Yosukeone at any one time would range between 40 and 50 on the basis of 4 or 5 men to a house, or it may have been composed of two families of 20 to 30 people a piece.

Neither Mizuno nor Tsuboi suggest a kind of "ritual removal." That is, a shift probably prompted by a calamity of major proportions and done with the intention of regaining the community's luck. This would seem to me to be a reasonable possibility and is certainly in keeping with later Japanese practices that were recorded in the building of new palaces on


N
WEST GROUP
EAST GROUP
ca. 50 m.
1
2
3
4
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15
17
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19
20
21
22
23
24
25
26
27
28
O Fireplace stones in situ
⁝ Fireplace stones removed
⊥ Standing stone(s) on platform
X Figurine or stone enclosure
Δ Phallic stone(s)

Fig. 7 Pit dwellings at Yosukeone, Togariishi, Toyohira Ward, Chino City, Nagano Prefecture (redrawn from Tsuboi 1962: 119).

the death of the ruler and was presumed to be the case otherwise where social affluence permitted it.

Groups of pits tend to curve around like a horseshoe or form a rough ring. This scheme has already been noted for the shell mounds in the Tokyo Bay region (Serizawa 1960: 136) and raises questions about the village's defense methods or social ranking or both. Some shell mounds evolved from the practice of each house accumulating its own refuse, and some are actually a collection of smaller mounds. Tsuboi feels that where there is good "hinterland" for a shell mound, its large size warrants the belief that the people indulged in forms of plant cultivation (Tsuboi 1962: 126). Of the pit dwellings known to have existed at the west end of the I.C.U. campus, only one had been furnished with a stone floor (Kidder 1959*b*: 84–85). Its uniqueness seems to justify the idea that it was the house of the group's chief and is therefore an indicator of social distinctions of the time.

SUMMARY

Speculation on the eclipse of this Chubū Middle Jōmon culture may have some bearing on the possible continuity in agricultural practices. Tsuboi considers such a culture as being fragile and relatively unable to withstand several bad seasons or fundamental changes in the environment. The hardiest people may have survived into a later period, but annihilation was the lot of most (Tsuboi 1962: 127). Expansion of coastal Late Jōmon sites and the appearance of "mountain" features in the east, by the latter half of the Middle Jōmon period, for instance, "basket" style vessels, stone phalli, figurines in quantity, pottery stands, and many details of pottery decoration, make it seem likely to me that these people were moving out of the highlands towards the lower plains, introducing their cultural paraphernalia to the seafood gatherers along the east coast. Trade in obsidian may have initially brought them into contact with the inhabitants of the western flank of the Kantō plain. The coastal people themselves may have acquired most of their obsidian by expeditions to or trade with residents of the Hakone Pass area (Groot and Sinoto 1952: 29), but Nagano's obsidian filtered down into the western part of the plain. While I believe the lowlands and coastal population was increased in this manner, I would not disagree with Tsuboi's supposition that the shell mound makers could hardly have caused a population explosion by simply catching more fish. He considers it likely that some vegetable farming supplemented the people's diet and created a more sedentary life for coastal dwellers (Tsuboi 1962: 127). The regional variations are frankly wider in the Middle Jōmon period than at any other time. This in itself is reason for investigation into the circumstances which caused the variations. It could hardly be coincidental that the regions where the high level of culture was reached in the Middle Jōmon period are also the modern regions where vegetable cultivation is superior to rice cultivation (Tsuboi 1962: 125).

ADDENDUM

Esaka Teruya has a note and illustrations in *The Archaeologi-Journal,* 1968, 24, back of frontispiece, regarding the discovery of bread at the Mineichigō site, Gero-chō, Masuda County, Gifu Prefecture. This is an Early Jōmon village site in which Moroiso a and b types of pottery were found. Some Katsusaka sherds also were recovered from one spot.

There is one cake about 7 cm long and five small pieces, quite similar in appearance to the bread from Sori Pit 5. These came out of a house pit which yielded Yonmaibata (Moroiso b) type pottery.

Esaka's comments include the fact that the site is geographically closer to the Kansai, but its relics are typologically closer to the Kantō. A large number of stone spoons *(ishisaji)* and arrowheads were found, leading him to suggest that they were probably manufactured there.

The results of this discovery may have to be looked at in a larger context, but two things are certain: Moroiso b pottery is normally considered to be earlier than Katsusaka pottery, and the Mineichigō site is about 70 km west of the outer edge of the area dealt with in this article.

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Painted Barrel-Shaped Vessels of the Middle Jōmon Period

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SINCE the excavation of Idojiri and related sites in Nagano Prefecture in the years following 1960, much attention has been directed towards an unusual group of vessels whose distinctive features invariably embody collar ridges and perforations along their rims. Other features may include smooth surfaces covered with red paint, an occasional design painted in red or an anthropomorphic figure in relief, barrel-like shapes, or bodies built up in convex sections. The entire group is generally devoid of the customary cord-marking that characterizes most Jōmon pottery.

These pots are so distinctive, their traits so basically alien to our common concepts of Jōmon pottery—that is to say, traits without recognizable antecedents—that they prompt investigations into their origins and use, as well as into the causes for their ultimate disappearance.

These painted, barrel-shaped vessels belong primarily to the earlier half of the Middle Jōmon period. If we accept the handful of Middle Jōmon radiocarbon dates, we are dealing with material ranging from 3000 to 2500 B.C.

SITES

So far, we are uncertain in which site the type first appeared. In an article, "The Heart of the Katsusaka Culture Zone," Yawata deals with the Ōmiyama site in Nagano Prefecture, near the Yamanashi border, which he dug for several seasons (Yawata 1965) (see map, Fig. 1, site number 31; a site name identified on Fig. 1 is followed hereafter with a key number in parentheses). One gets the impression that the large yield from this site encouraged Yawata to look on it as a possible cradle of the type—and he believes the type is somehow connected with the rise of the Katsusaka culture—but he does not make such claims for it in specific terms. Ōmiyama is characteristic of the large community sites of this period, and one cannot discount the possibility that the earliest examples may have appeared in Ōmiyama.

Possibly the latest date for barrel-shaped pots in the Middle Jōmon period would be suggested by the finds at Kitano, Mitaka City (39) that I with others excavated. One small fragment of a rim with a pair of holes was brought to light just outside the pit of a house; and

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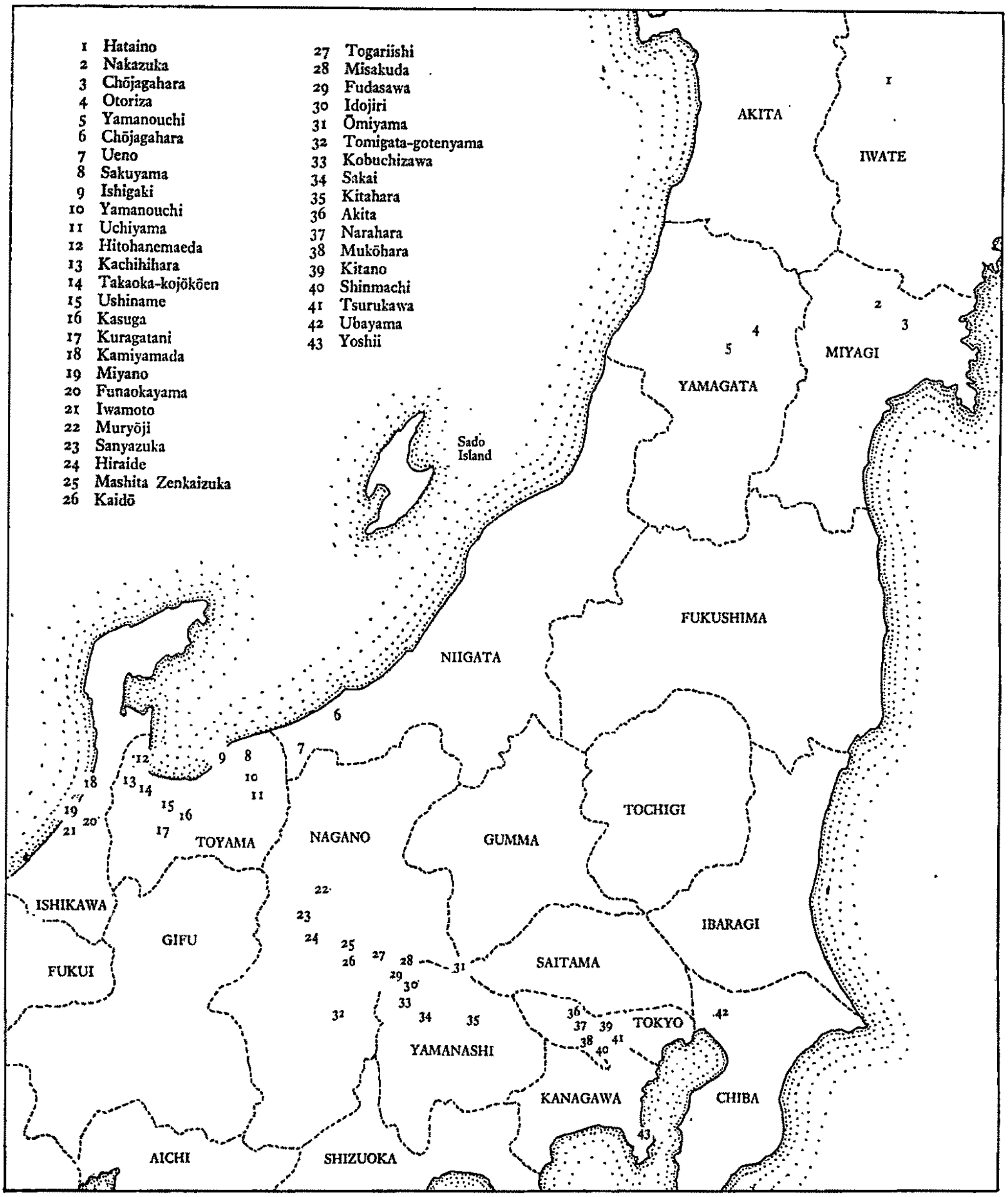


Fig. 1 Map of sites showing distribution of barrel-shaped pots with neck holes. Middle Jōmon period.

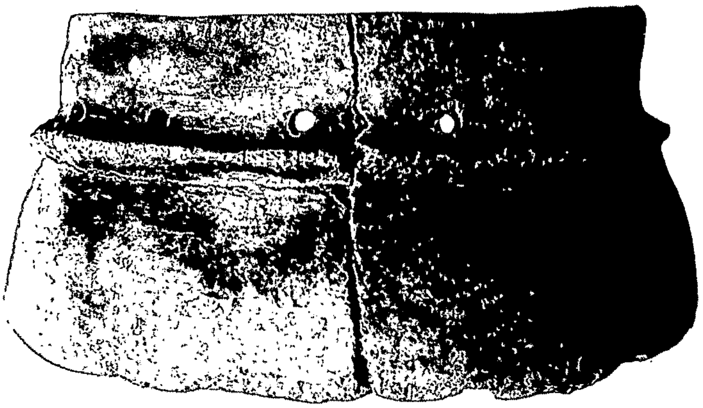


Plate I*a* Rim sherd of vessel with neck holes, from Kitano, Mitaka City, Tokyo. Length 18.7cm. Early Middle Jōmon period.

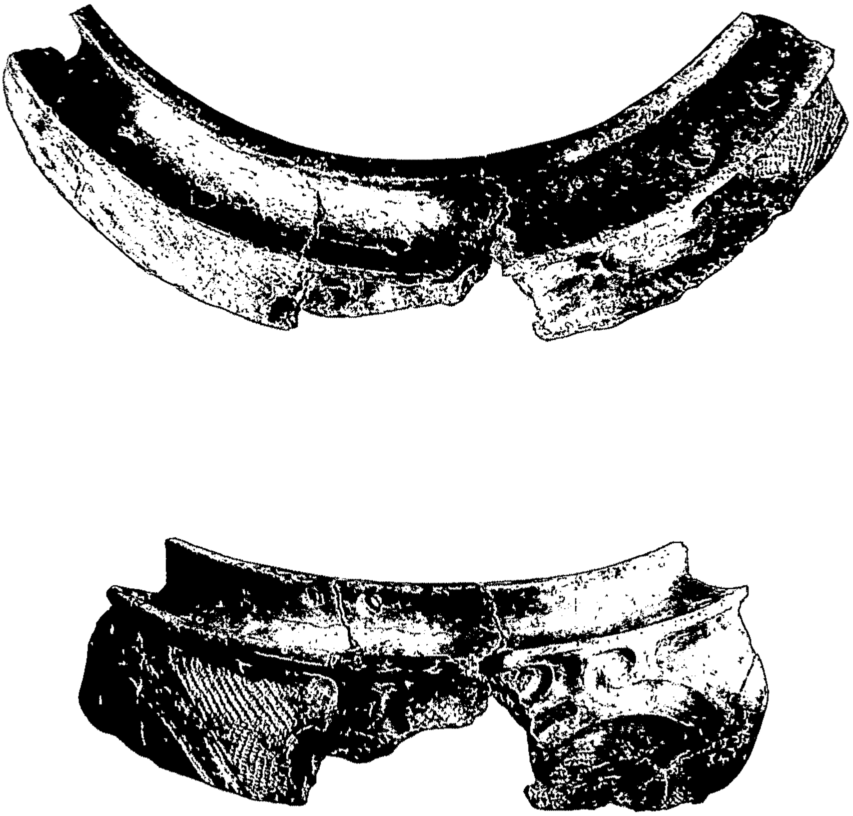


Plate I*b*, *c* Rim sherds of vessel with vertical neck holes, from Kitano, Mitaka City, Tokyo. Length 23 cm. Late Middle Jōmon period.

approximately one-fourth of the rim of another small vessel with what must have been fifteen evenly spaced holes was found inside what was perhaps another house pit (Plate I*a*). Large areas of black encrustation concentrated on the exterior (the interior looks as though it had received more care in cleaning) show it was used for cooking. Both of these vessels should be Katsusaka in time, although their lack of decoration makes identification not entirely certain, but the farmer-landowner had at some time earlier dug up about one-third of a rim of a small pot of an obviously later date (Plate I*b*, *c*). The mouth diameter would have been 21 cm, and nine pairs of holes run vertically through the neck ridge. Small quantities of red paint may be seen on the inner surface and on the top of the rim, and two holes near the rim on either side of a crack show an effort had been made to retard a break by someone who thought the pot worth saving. Most astonishing for this type, however, is the lateness of its date. The walls are thin; the decoration takes the form of an early zoned cord-marking, here applied multidirectionally in the Late Jōmon manner. But other features of the decoration are typically late Middle Jōmon; in other words, the pot is a borderline case.

Distribution of Finds

The distribution of these vessels with collar and neck perforations follows fairly closely the western distribution of the typical pottery of the earlier half of the Middle Jōmon period, the type that commonly goes by the name of Katsusaka and by at least a dozen other names for regionally related types. Such vessels are quite rare in the eastern half of this Katsusaka distribution zone. Some 7 sites lie on the west side of Ishikawa Prefecture, 3 in Kanazawa City, i.e., Miyano (19); about 12 in Toyama—including 3 in Uotsu City, i.e., Ishigaki (9); and 2 in south Niigata. Across the mountains and on the southwest side of the slope in Nagano Prefecture are to be found 11 major sites, and examples come from the subsites around Togariishi and Idojiri, lumped together in this report under chief site names for numbering purposes on the map. Three sites are known in Yamanashi, including the well-worked area around Sakai (34); 6 in metropolitan Tokyo; 1, the Ubayama shell mound (42) in Ichikawa City, Chiba Prefecture; and another, the Yoshii shell mound (43), in Kanagawa Prefecture. The widely scattered places in Yamagata and Miyagi Prefectures and the lone site in Iwate Prefecture of Hataino in Morioka City (1) are well outside the distribution belt, but perhaps help to bear out certain other implications that aspects of this Middle Jōmon culture eventually moved both east and north. It may be that examples will show up later in Niigata and west Fukushima Prefectures.

The greatest concentration of sites therefore lies on the west side of the mountains, with a lesser concentration farther to the east, while the most elaborate of the vessels comes from east Nagano Prefecture, not too far from Yamanashi.

Many of these sites in the central mountains average about 1000 m above sea level and are fairly large by all Jōmon period standards. As community sites, they are much larger than any of their predecessors, and their occupants produced female figurines in some quantity, used stone male symbols, erected altar-like arrangements in the pits of dwellings, and made pottery in phenomenal quantities, apparently to meet their storage needs, and in new shapes that show for the first time a differentiation of shape according to function. All of this cultural explosion has led to a considerable amount of speculation on the possibility that simple forms of cultivation were practiced that would therefore have provided greater economic stability for the population than would normally have been the case in a simple hunting, gathering, and fishing system.

Possible Functions of Barrel-Shaped Pots

Among the many vessels or thousands of sherds recovered from a site, there may be only one of these barrel-shaped pots or, at best, only a small number. Yawata studied this particular ratio at Ōmiyama in Nagano Prefecture. Out of several tens of thousands of sherds, he found pieces of 15 of these pots, and these were chiefly rim sections (Yawata 1965: 4). (I take it that many body pieces went unrecognized.) From 8 fragments, almost nothing about the vessels could be determined, but from 6 others, 4 pots were evidently highly polished on the exterior; the same pots bore red paint (iron oxide), also on the exterior; 1 had paint on the interior, while the other showed no evidence of paint whatsoever. The fragments of 1 vessel looked as though the vessel had originally been painted black and later received a coat of red paint. The diameters of the rims of these vessels were calculated to range between 7 and 24 cm or an average of 15 cm—possibly slightly larger.

Yawata notes that in some pottery the holes are evenly spaced, while in others the holes are in pairs, and he thinks that this difference reflects different uses to which the vessels were put (1965: 3) (see Fig. 2). He reconstructed one of these vessels to have had five or six pairs of holes.

Yawata claims no special insights on the use of such vessels at Ōmiyama, but since he excavated more than 50 pit dwellings, he feels that the ratio of ownership for these pots may have been roughly 1 such pot to 12 houses (11 houses without) (1965: 5). He does hold a general theory that these vessels served as ceramic drums, but he himself says that this idea does not fit the Ōmiyama examples.

Jars with perforations were mentioned in Japanese archaeological literature around 1897; perhaps the references were to these barrel-shaped, painted pots. A study of the prehistory of Etchū, published in 1936 (Hayakawa) included an example from the site of Chōjagahara in south Niigata Prefecture. It has been the Idojiri excavations, however (Fujimori 1965), coupled with investigations in the last five years into the likelihood of agriculture in the Middle Jōmon period, that has brought this interest to its present peak.

The large jars from Idojiri and Togariishi have evenly spaced holes, polished surfaces, red paint sometimes taking the shape of designs, handles at the shoulders, and may bear a human-type figure, arms and legs widespread, applied in relief on one side only. The height of these is as much as 51.2 cm, and the diameter at the rim 24 cm.

At Idojiri and its related sites, the Middle Jōmon culture has been divided into three chronological stages, the first two belonging to Early and Late Katsusaka, the third to Kasori E (or called Ubayama in most English books) (Miyasaka 1965).

According to Miyasaka, in Early Katsusaka, clay figurines were fashioned and rather large standing stones were put up, apparently installed at appropriate places in the villages. By Late Katsusaka, the figurines had disappeared from these particular sites (but did exist elsewhere in Nagano Prefecture) and were more or less replaced by zoomorphic faces on the rims of vessels in rather many examples that have been found apart from other relics. In the third stage, Kasori E or Ubayama, the figurines were again not made, and the rim heads were abandoned, but stone altars were erected in pits of dwellings, standing shafts were placed on these, and phallic stones were produced.

In respect to these particular vessels, the earliest are the largest. Some were built up in sections; they were provided with handles and rather narrow rims and were painted. During the middle stage the vessels became smaller and tended to degenerate in quality. In the last

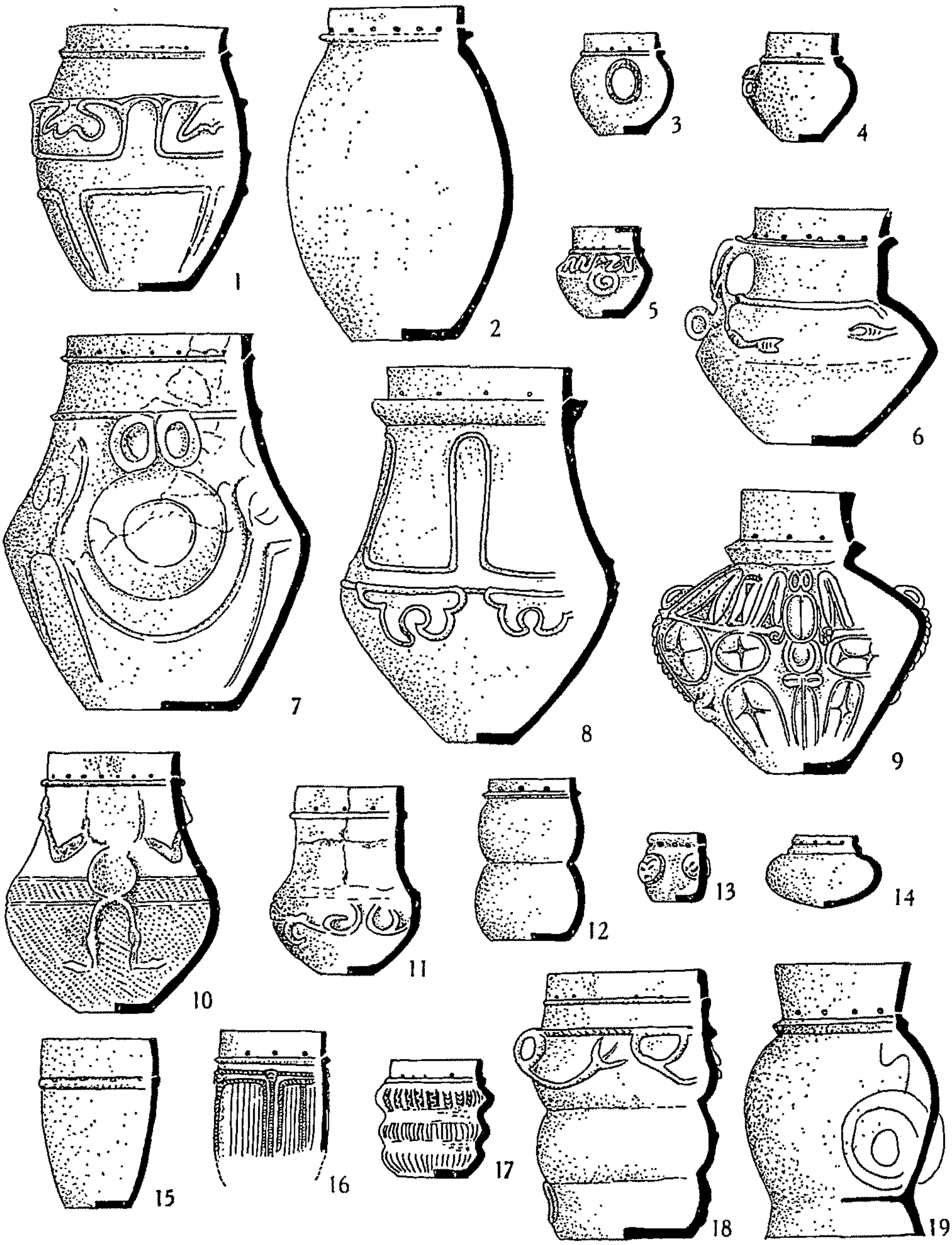


Fig. 2 Examples of pots with neck holes, showing variety of shapes: 1, Shindō, Fujimi-chō, Nagano Prefecture; 2, Hataino, Morioka City, Iwate Prefecture; 3, 5, 7, 16, Tōnai, Fujimi-cho, Nagano Prefecture; 4, Sori, Fujimi-chō, Nagano Prefecture; 6, 8, 18, 19, Idojiri, Fujimichō, Nagano Prefecture; 9, Nakadōone, Fujimi-chō, Nagano Prefecture; 10, 15, Fudasawa, Fujimichō, Nagano Prefecture; 11, Ubayama shell mound, Ichikawa City, Chiba Prefecture; 12, Togariishi, Chino City, Nagano Prefecture; 13, Sakai, Nirasaki City, Yamanashi Prefecture; 14, Kamiyamada shell mound, Unoki Village, Kawakita County, Ishikawa Prefecture; 17, Nakahara, Inume-machi, Hachiōji City, Tokyo Prefecture; 19, Mashita Zenkaizuka, Okaya City, Nagano Prefecture. Height of 1: 35.4 cm. Others to scale.

stage, they were largely forgotten except for only one or two that seem to be merely a vestige of an earlier stage.

These changes around Idojiri have been interpreted to mean essential differences in food-storage practices and therefore in the diet itself. Miyasaka describes these jars as storage vessels and assumes that they were used above ground in a suspended position. But in the last stage of Middle Jōmon, they were replaced by storage vessels that were sunk in the ground. In other words, the former was devised for preserving foods which had to be kept dry, while the latter was suited to foods that were immune to moisture and might possibly require a fairly constant temperature. If this analysis is true—and it does impress one as a fraction tenuous—it points to a considerable amount of ecological change during the Middle Jōmon period in this region and the necessary adjustments in domestic equipment to meet it.

Carbonized seeds of wild grapes were found in one vessel, so it was concluded that the jar had been used in the making of a kind of wine (Fujimori and Muto 1962). One of the excavators felt that these vessels were intended as storage jars to hold seeds for spring planting, and the neck was shaped to take a lid. Presumably, the lid would have been of wood, but leather or perhaps even a mat could have served. Yawata specifically says that no clay lids were found at Ōmiyama (1965: 5), and I cannot recall any reports of lids from anywhere else, although there are objects that I would call flat clay plates. Esaka Teruya, one of the leading exponents of simple forms of cultivation in the Middle Jōmon period, believes the jars acted as containers for starch that had been removed from chestnuts, horse chestnuts, acorns, other nuts, and the roots of ferns and *imo,* a yam-like plant (Esaka, in Yamanouchi 1964: 166).

The one vessel of this type unearthed at the Hataino site in Morioka City, Iwate Prefecture, is quite plain. It was found to have a very much heat-weakened lower body, a fact that was taken to mean that the jar had been used for cooking and had been suspended over a fire with the aid of cords passed through the neck holes (Kusama and Yoshida 1960: 7). This may have been true, and a ridge to protect the cords would make good sense, but the finely painted examples from Idojiri, for instance, do not look as though they were intended to be subjected to such profane use. The Hataino jar is entirely devoid of decoration, Morioka City is certainly a long way from the main centers of manufacture of the type and, despite the fact that the finding of only one pot in a site fits the known pattern well, this example need hardly be taken as typical.

At Kitahara, Yamanashi (35), a barrel-shaped vessel lay beside a large pot with an animal-face handle and over an "incense-burner," the whole group giving the impression of an intentional arrangement. The excavator took these relationships to be the result of a special deposit and believes the barrel-shaped pot had been used in fermenting wine for ritual use (personal communication from Akira Kamikawana).

Speaking of the large pots at Idojiri and Togariishi, the strongest case for pottery drums has been made by Yamanouchi (1964: 152). He compares them with clay drums used by unspecified people in Asia, America, and the Near East and believes a skin was stretched over the open end and was held in place by small wooden pegs driven into the holes. The drums were important pieces of ritual paraphernalia and were used in religious exercises. The anthropomorphic figures in relief were inspired by dance postures and gestures.

The Idojiri sites have yielded 6 of these vessels to the best of my knowledge and undoubtedly some unpublished fragments. These 6, in other words, were complete or restorable. They are made of pure clay, in contrast to the coarse, gritty clay of other pottery at the sites, and some examples are fully painted, both outside and in.

Excavations at many Jōmon sites—particularly from the Middle Jōmon period on—have revealed a few fragments of painted pottery out of the thousands of sherds that each site normally yields. Some sort of overall coverage with red paint was occasionally done, red oxide beginning as far back as Earliest Jōmon, with some preference for cinnabar in the Late Jōmon period in the Kantō region. Very rarely in late or latest Jōmon periods may examples of painted designs be found, and these are usually limited to central Japan, and primarily to the Kantō. Such paint was applied after the vessels were fired and can now be easily washed off. But on this particular type of vessel, the paint was applied before the firing and has become a permanent part of the decoration. It is a technique almost unknown in Japan until the Middle Yayoi period, or in this case, about the first century B.C. or A.D., and therefore constitutes a highly significant departure from the rare but otherwise customary procedure at this juncture.

Any utilitarian point of view towards the question of surface painting leaves too much unaccounted for. By all rights of consistency, it is a point of view which should be held by those who believe in the "unbroken stream of Jōmon developments," although I have yet to see this view baldly stated in print. Stated simply, one holding this view would look on the application of pre-fired paint as an attempt at both lining and veneering a vessel in order to improve its capacity for holding liquids. This is not to say that the effort was necessarily successful. Jars of this aproximate time period are said to lose about 2 percent of their contents if they are filled with water and left to stand overnight. Nevertheless, such a view would give Middle Jōmon potters the credit for a technical invention, despite their inability to impress its value indelibly on successive generations.

HISTORICAL BACKGROUND

Painted, barrel-shaped vessels must be examined against a background of what is conceded by all to be the sudden emergence of the Middle Jōmon culture—an upper plateau or low mountain culture—and in the process, it would be well to give a widely held Japanese opinion that the Jōmon period, once begun, tended to exist in isolation to all neighboring countries. In studies in which the entire period has been viewed in breadth, the evolution of Jōmon pottery has been spoken of as though its traditions created a fathomless reservoir; and that from this bottomless well the antecedents for every decorative motif may be seined (Yamanouchi 1964: 156–158) as well as the prototypes for every shape. I doubt that this could have been strictly the case, as conditions in Japan have been historically demonstrated to have been quite the opposite, except in instances where conscious efforts were made to obstruct foreign entry. These conscious efforts came in reply to an awareness of possible encroachment on established traditions and vested interests and can hardly apply to primitive life of a Neolithic stage.

Admittedly, the farther back one goes, the more imprecise may be the registration of continental traits in Japan, and presumably, the longer the cultural lag. It also seems likely that the location of the first point of an introduced trait would be more difficult to pin down.

Barrel Shapes and Yangshao Pottery Compared

Casting around for possible connections, certain parallels with features of the Yangshao stage of Chinese painted pottery come to mind, and so far as I am able to ascertain, it is only in the Yangshao stage that these parallels may be seen.

I would like to line up the parallels with new traits of the earlier half of the Middle Jōmon period and the geographic zone under question. The time correspondence may be suitable, but it is open to argument as long as radiocarbon dates are lacking for China; and one should recall that the Painted Pottery culture is now known to have spread far beyond the inland regions once attributed to it.

The twin-shoulder handles compare favorably in the Yangshao and the Japanese material and are a feature almost entirely unknown at any other time in the Jōmon period (Plate II*a*).

The anthropomorphic figure was skeletonized in China, painted on one side of the vessel only (Plate II*b*). In what should have been a fairly normal transformation to Japanese techniques, the motif was applied in Japan in the simple plastic tradition of Middle Jōmon pottery.

The figure's arms and legs are shown less zigzag but outspread, and usually three fingered (Plate III*a*).

Snake motifs are common to both Chinese and Japanese cultures and in Japan the motifs are limited to the earlier half of the Middle Jōmon period. It would be pointless to suggest any connections if it were not for their relationship to the heads to which they are attached. The famous Yangshao "lids," or whatever they may be, have parallel lines painted on their faces; a snake runs up the back of the head and over the crown (Plate III*b*,*c*). Middle Jōmon figurines from Nagano Prefecture have the snake coiled behind and above the head (Plate IV*a*). The incised "weeping" eyes of the Japanese types might well be a non-painted form of the lines descending from the eye in the Chinese examples.

The most outstanding Togariishi vessel has what vaguely resembles a large face on which stylized "eyes" like hooks are painted; unfortunately, they are not clear in a black and white illustration (Plate IV*b*). Eye-like patterns again are not sufficiently infrequent to work with, yet it is a fact that Jōmon pottery does not use them in any other way, and the similarity of stylization in the Chinese and Japanese examples is too noticeable to ignore, especially at a time when attitudes towards decoration were poles apart (Plate V*a*). Interestingly enough, large bowls (Plate V*b*) appear with this Middle Jōmon pottery and also disappear as other features of the culture fade out.

An undecorated vessel from Shensi province of sagging globular shape bears many perforations along the rim, but it lacks the ridge collar (Academia Sinica 1962: Plate VII 3). It is mentioned here because of its general similarity to the type under consideration, but beyond that, it would be unconvincing to press the point. There is a clay object, however, that is identical. It is spoken of as a stand in Japan, and examples range between 20 to 25 cm in diameter and around 8 cm in height. It has several large rounded holes in the wall (Plate V*c*). Like the barrel-shaped pots, only 1, or a very small number, is recovered from a site. The

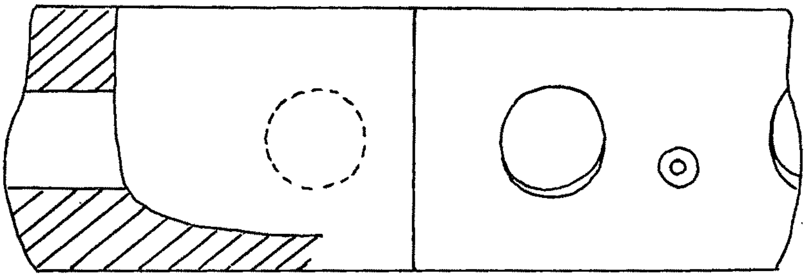


Fig. 3 Pottery object, shown as illustrated, from Tsou-hsien, Shantung. Chou Dynasty (*Kaogu*, 1965, 12: Fig. 12–21).

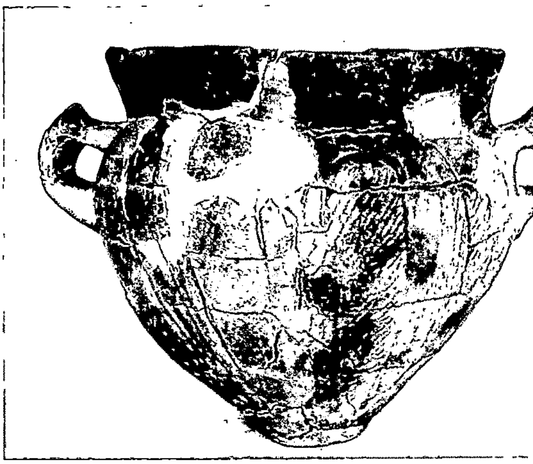
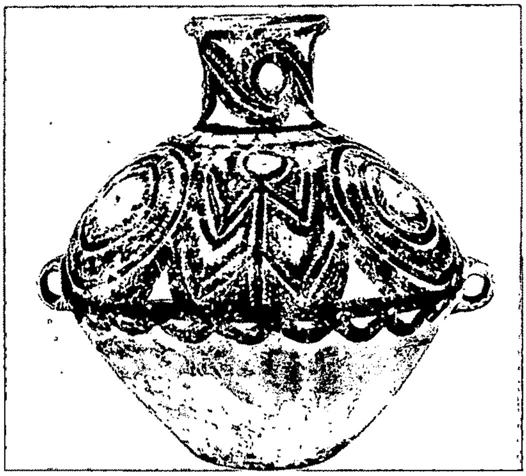


Plate II*a*

Vessel with double handles, I.C.U., Loc. 27A, Mitaka City, Tokyo. Height 32.5 cm. Late Middle Jōmon period.

Plate II*b*

Painted vessel with skeletonized figure, from Pan-shan, Kansu. Yangshao stage. (Andersson, *BMFEA* 15, pl. 189).



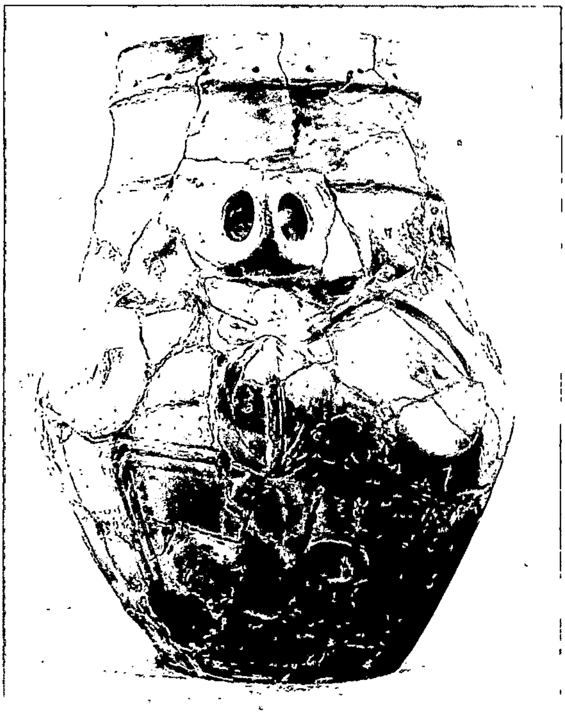


Plate III*a*

Vessel with anthropomorph, from Tōnai, Fujimi-chō, Nagano Prefecture. Height 51.2 cm. Early Middle Jōmon period. See fig. 2(7) for opposite side.

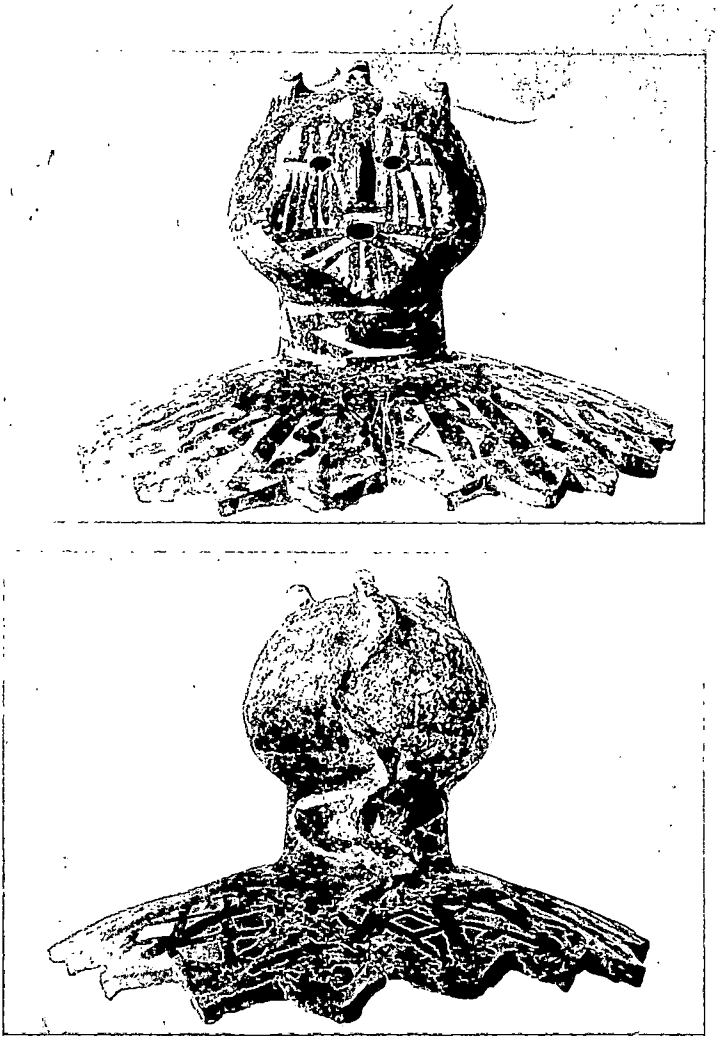


Plate III *b, c* Painted clay “lid” with head, from Pan-shan, Kansu. Yangshao stage (Andersson, *BMFEA* 15, pl. 187).

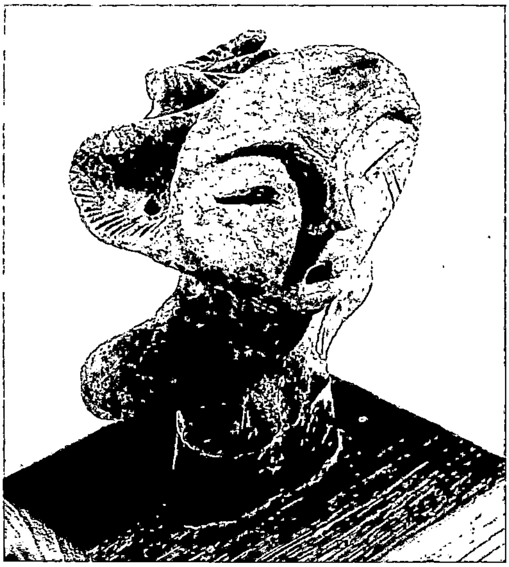


Plate IV*a*

Head of clay figurine with coiled snake, from Tōnai, Fujimi-chō, Nagano Prefecture. Height 10.5 cm. Early Middle Jōmon period.

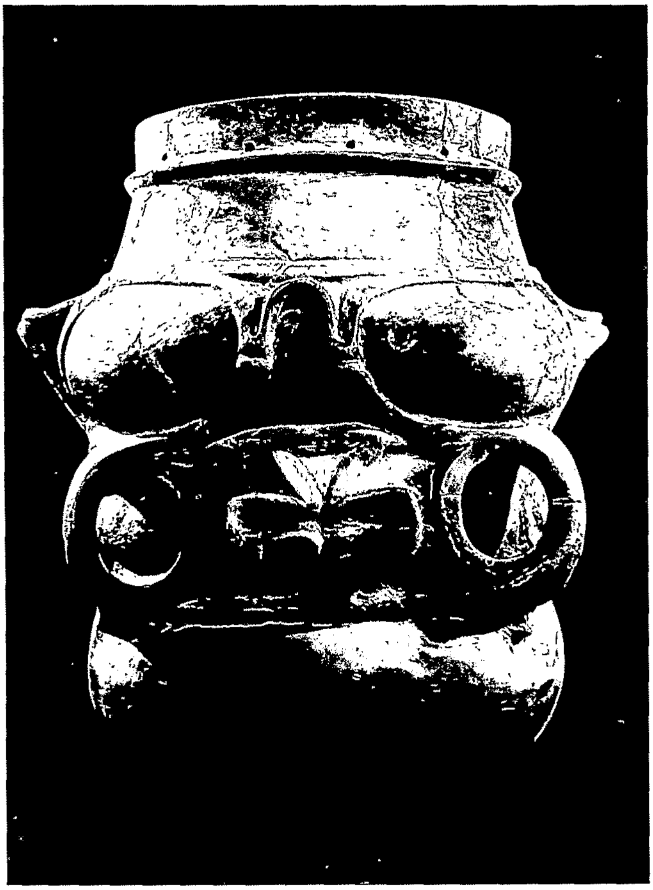


Plate IV*b* Vessel with painted patterns, from Togariishi, Chino City, Nagano Prefecture. Height 40.1 cm. Early Middle Jōmon period.

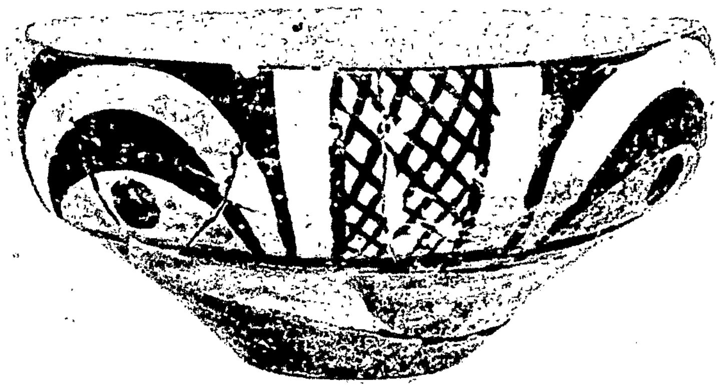


Plate V*a* Bowl with painted patterns, from San-men Gorges, Honan. Yangshao stage (Academia Sinica 1962, pl. VIII (3).

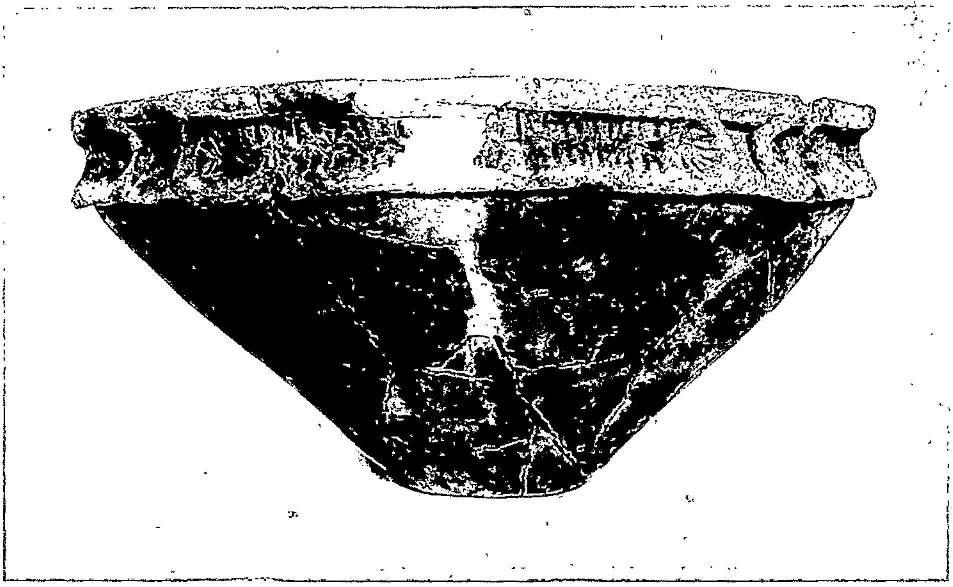


Plate V*b* Large bowl, I.C.U., Loc. ID, Mitaka City, Tokyo. Diameter of rim 48.7 cm. Early Middle Jōmon period.

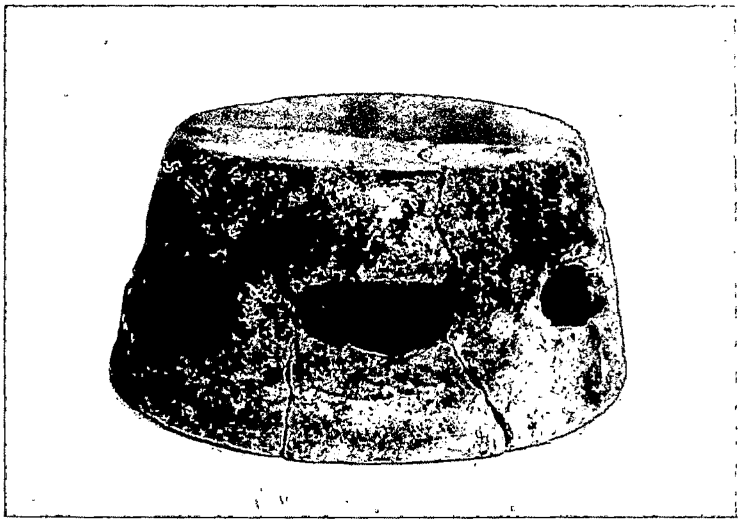


Plate V*c* Pottery stand, I.C.U., Loc. 1B. Mitaka City, Tokyo. Diameter at base 17.4 cm. Early Middle Jōmon period.

large Narahara site at Hachiōji contained no fewer than 7 when dug in the 1930s. Their use at that time was quite unknown. The description concludes with the frank admission that the investigators did not know which end was up (Gotō 1933: 31). One and perhaps a sherd of another have been found on the large International Christian University site in Mitaka, Tokyo. These objects are now believed to be ritual offering tables. An example from Shantung of a little later date is shown upside down, if this interpretation is correct (Fig. 3). Without the caption, history could be repeating itself thirty years later; it is called an object of unknown use.

CONCLUSION

In conclusion, the vessels that comprise this curious intrusion in the Jōmon period apparently disappeared because the need to which they were put ceased to exist. All but one of these new features vanished by the end of the Middle Jōmon period as rapidly as they had come: gone were a general lack of cord-marking, the pre-firing technique of painting, double handles, large bowls, stands, snakes—and the way they were used in relation to figurines, the zigzag anthropomorphs, and "eye" patterns. They make up a series of traits that could hardly have accumulated casually. The only one that left any lasting impression was the relief anthropomorph. One example may be seen from Hirosaki City of the Late Jōmon period, where, in fact, a figure appears on either side of a vase-shaped vessel (Kidder 1959: Plate 16). Admittedly, the barrel-shape itself and its accompanying rim holes, both apparently an integral part of the function of the vessel, and the latter the indispensable key to the identification of the type, are difficult to relate to any neighboring areas. Both are intrusions at this juncture, however, and are historically important to Jōmon pottery in the sense that now function dictated form. I would suggest that we may be dealing with the ultimate extension of the Yangshao stage of the Painted Pottery culture of China to which minor traits have attached themselves and that Yangshao-like elements may even have had some connection with the formation of this Middle Jōmon culture.*

* [Barrel-shaped earthenware vessels very similar in form to these of the Middle Jōmon period have been found in a few sites in the Philippines; see Wilhelm G. Solheim II, *The Archaeology of Central Philippines: A Study of the Iron Age and Its Relationships.* Manila: Monographs of the National Institute of Science and Technology, No. 10. Ed.]

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Sites in Yamanashi Prefecture and Middle Jōmon Agriculture

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INTRODUCTION

I HAD the opportunity to investigate the sites of Kitahara and Yanagida in the mountainous area east of the Kōfu Plain in Yamanashi Prefecture, an area regarded as one of the dynamic centers of culture in the Katsusaka stage of the Middle Jōmon period. Sites like these give one reason to feel that the culture of the Katsusaka stage exhibits features of striking change; the sites' rich content is impressive. Radically new features have been of special interest, and excavation of the sites and further analysis of the remains have been carried out to clarify some of the problems the new features have presented.

During the Middle Jōmon period, there were two main culture zones: the Katsusaka and the Otamadai (frequently written as Atamadai in English publications); the Katsusaka zone was located in the inland mountains and the Otamadai, near the east coast. The Katsusaka culture had its center in Nagano and Yamanashi prefectures, from where it extended east as far as the southwest Kantō and west to the Hokuriku. The Kitahara and Yanagida sites are situated at the juncture of the Katsusaka and the Otamadai zones and belong essentially to the Katsusaka stage.

Representative sites of the Katsusaka period are Idojiri (Fujimori 1965), Hiraide (Ōba 1955), and Togariishi and Yosukeone (Miyasaka and Yawata 1957) in Nagano Prefecture; Sakai (Shimura 1965), Kitahara, and Yanagida in Yamanashi Prefecture (Kamikawana 1966); and Hino-fukiage in Tokyo. All are located either on a low plateau or a riverside terrace. From the character of these sites, it is clear that social conditions were fairly stable at the time and food acquisition was by no means a constant problem. The ceramic industry produced large vessels with huge handles and elaborate decoration; the vessels' shapes were determined by their functions. What were the reasons behind the relative ease of getting food? Possibly, the people improved their organization for group effort. There may have been close cooperation in hunting and fishing, but as an explanation for the new degree of stability, such a suggestion seems inadequate. The author assumes that the Katsusaka people came to employ a form of agriculture that ensured their economic stability. The excavations revealed a good many stone

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tools which are not sturdy enough to have served adequately as axes; in other words, the people did lighter work than their ancestors. Sites and finds are examined in this article in a search to explain the remarkable developments of the Katsusaka culture and the possibilities of agriculture.

TOPOGRAPHY OF THE SITES

The Kōfu Plain, an alluvial lowland or valley plain, delta formed, is located in the center of Yamanashi Prefecture and is enclosed by mountains on four sides: the Kānto mountains on the north and east, the South Japan Alps on the west, and the volcanic range of Fuji on the south. The plain drops steeply from the mountains while assuming a triangular shape. The entire plain was once a huge lake; eventually it was obliterated as the Kamanashi, the Fuefuki, the Ara, and other rivers drained down silt and formed deltas of differing sizes. The usual stratigraphy of the region consists of a surface layer of humus, followed by a sand layer, below which is bedrock of andesite and granite, here called the Misaka Layer.

Very few Jōmon sites are found on the plain, but many are located on the surrounding plateau along the rivers, and on the whole, it is possible to say that the higher the site, the older its age.

The sites in question are situated at the east end of the plateau. The Monju and Omo rivers, running down from Mount Daibosatsu, join near the sites and produce a sloping delta of unconsolidated material between them. The sites lie on the inundated fields higher than the uppermost point of the delta. Five main sites have been located in the area: Jūrobara (A), Kitahara (B), Tonobayashi (C), Yanagida (D), and Otsukida (E); all are in the jurisdictional area of Enzan City (Fig. 1).

DESCRIPTION OF THE SITES

Jūrobara

The site was noticed when peach trees were being replanted. It was dug in 1962 by a local person and was found to have a square pit dwelling with rounded corners. It contained about thirty pottery vessels, the large number being quite unusual for a normal pit dwelling. Our excavation was begun by digging six trenches (A-F) around the pit in a search for more dwellings, but nothing further was revealed. We cut into the sterile layer of brownish-yellow soil that contained stones ranging from fist-size to human-head size, at a depth of about 40 cm. This soil layer seems to have been formed by the flooding of the Omo River. Considering the size of the area exposed, the total count of relics found is small; there were some Katsusaka and Kasori E (often referred to as Ubayama in English publications) sherds, the head of a figurine, and some stone implements. Most of the tools are of shale.

Kitahara

The site was excavated simultaneously with Jūrobara, but because of limited time, the investigation could not be completed. A second excavation was carried out from 26 March to 6 April 1963. The sherds are all of the Katsusaka type. A deep layer of black soil descends below the humus to a depth of between 1.2 and 1.5 m, and another layer of blackish soil lies below that (see Fig. 2).

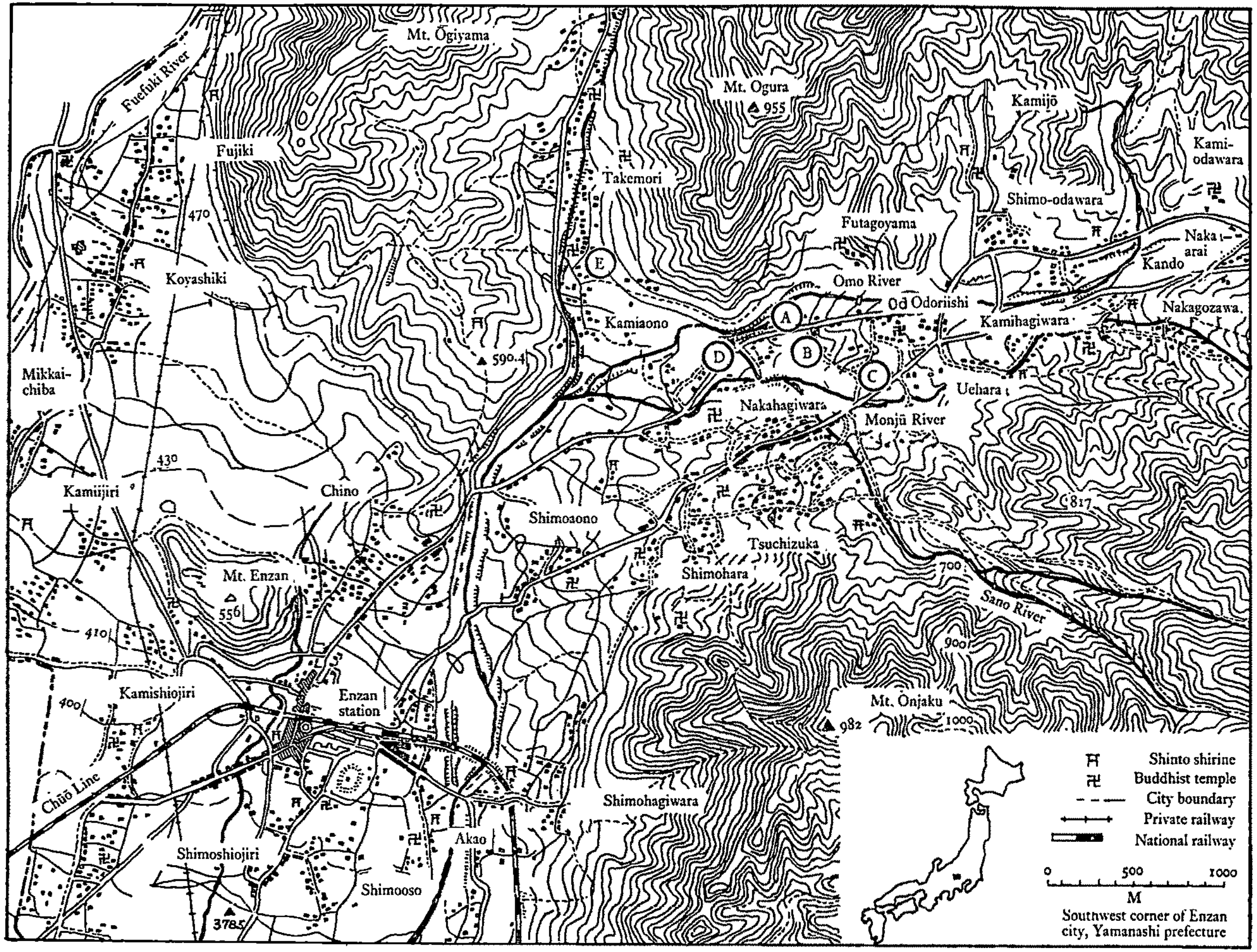


Fig. 1 Map of Middle Jōmon sites in Enzan City, Yamanashi Prefecture: A, Jūrobara; B, Kitahara; C, Tonobayashi; D, Yanagida; E, Otsukida.

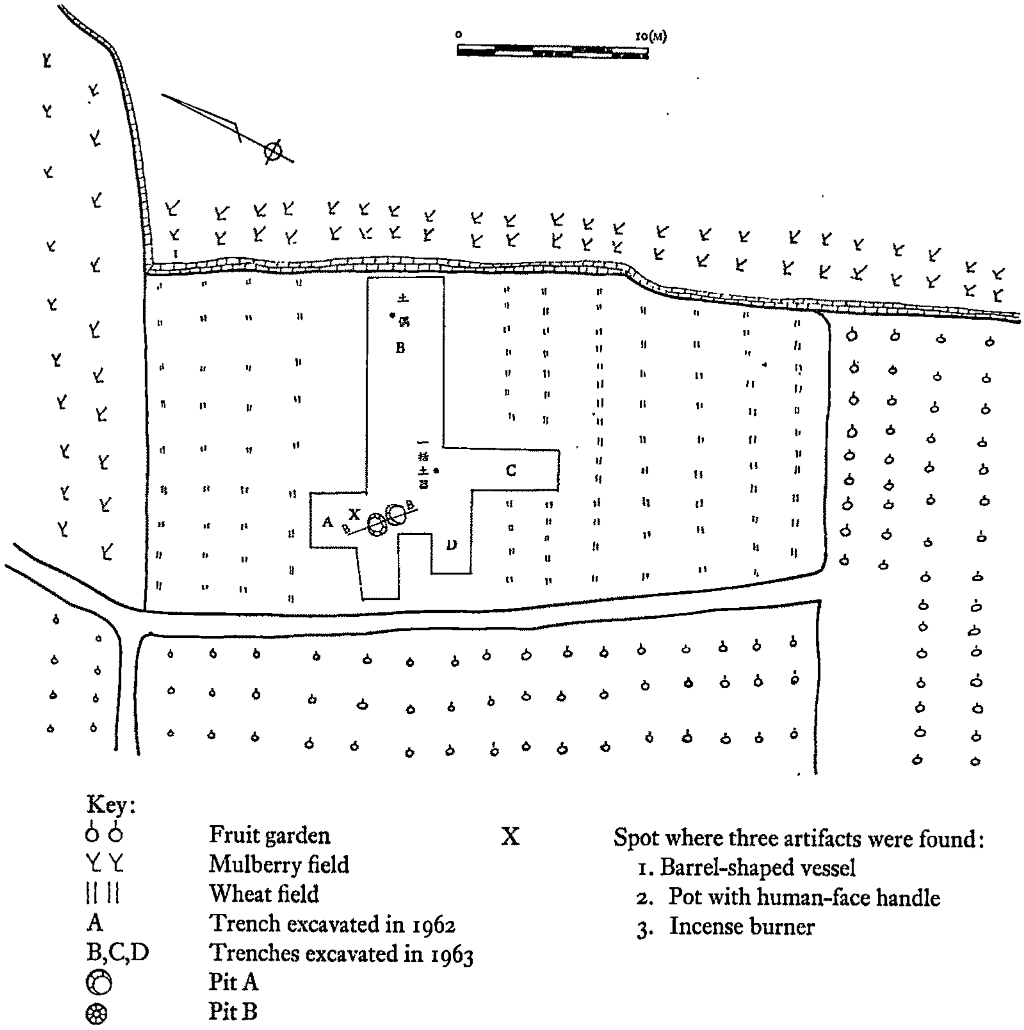

0
10(M)
A
X
B
C
D
Key:
ó ó Fruit garden
Y Y Mulberry field
|| || Wheat field
A Trench excavated in 1962
B,C,D Trenches excavated in 1963
Pit A
Pit B
X Spot where three artifacts were found:
1. Barrel-shaped vessel
2. Pot with human-face handle
3. Incense burner

Fig. 2 Diagram of Kitahara site.

The relics were in fairly good condition (Plates I and II). Two small pits (1 m in diameter) that had been cut into the black soil to a depth of 1.3 m contained several pottery vessels. Under one of the vessels lay 6 stone implements (Plate II*c*) and to the north of the pit, in a brownish soil layer, about 1 m below the surface, 3 vessels were found: a barrel-shaped pot with perforations near the rim (Fig. 3*b*), a huge pot with a "human-face" handle (Plate I*b* and Fig. 4*c*) rested on its side, and below these an incense-burner shaped vessel was carefully deposited (Plates I*b* and II*a, b*). The barrel-shaped vessel had been placed as though it had been crushed by the weight of the earth, but it still retained its original shape. Unfortunately, this was not the case with the "human-face" handled vessel, whose shape was no longer distinguishable. This "incense-burner" (Plate II*b* and Fig. 4*b*) has a total height of 20.3 cm, and from base to rim is 9.6 cm; it is triangular in shape at the rim—each side measures 15 cm—and it is circular at the base with a diameter of 7 cm. The bridge-handle is composed of three strips of clay and carries three animal-like figures. The figures resemble wild boar when

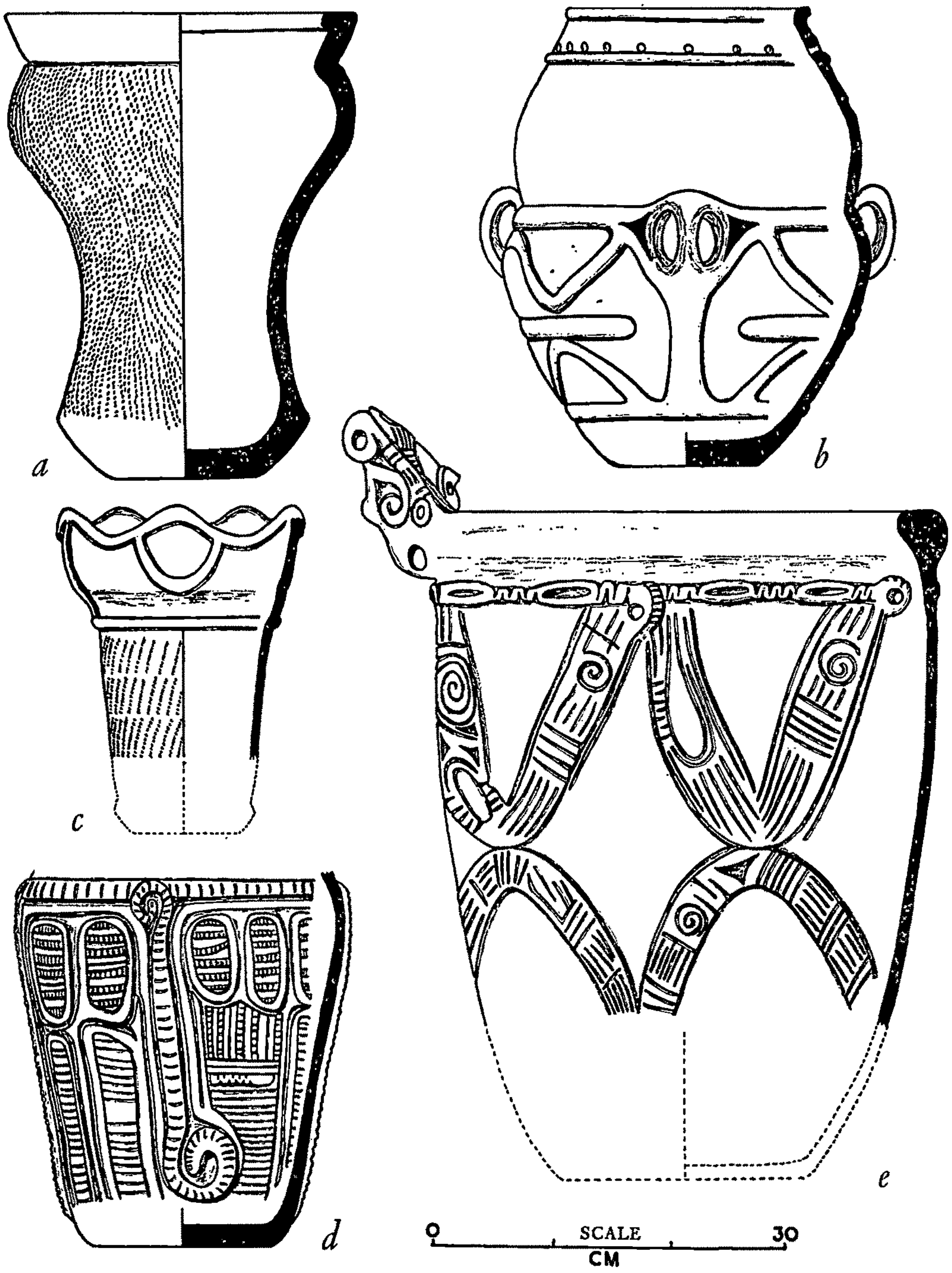


Fig. 3 Pottery vessels from Kitahara.

viewed from the front, but fish when seen from the side. There are projections on the two opposite sides of the rim. A row of indentations on each strip reminds one of the stylized body of a snake. On the inner surface of the vessel are multidirectional scratches that look as though they were made by a stick or a utensil used to stir some kind of liquid, which may have been a fermented drink. We collected carbonized material from the inner surface, but an analysis has not yet been made of it.

We extended the area during the second excavation, but could find no evidence of dwelling

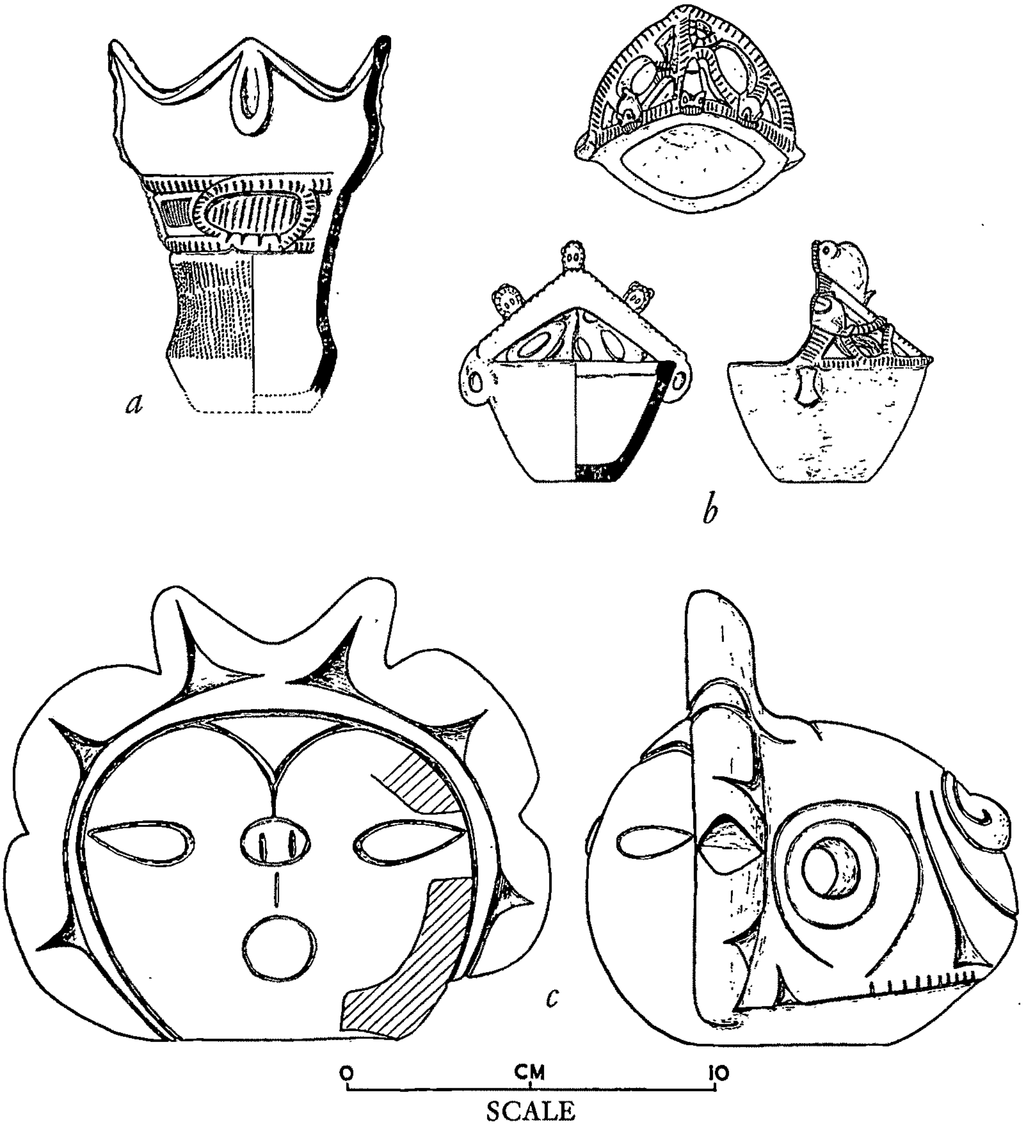
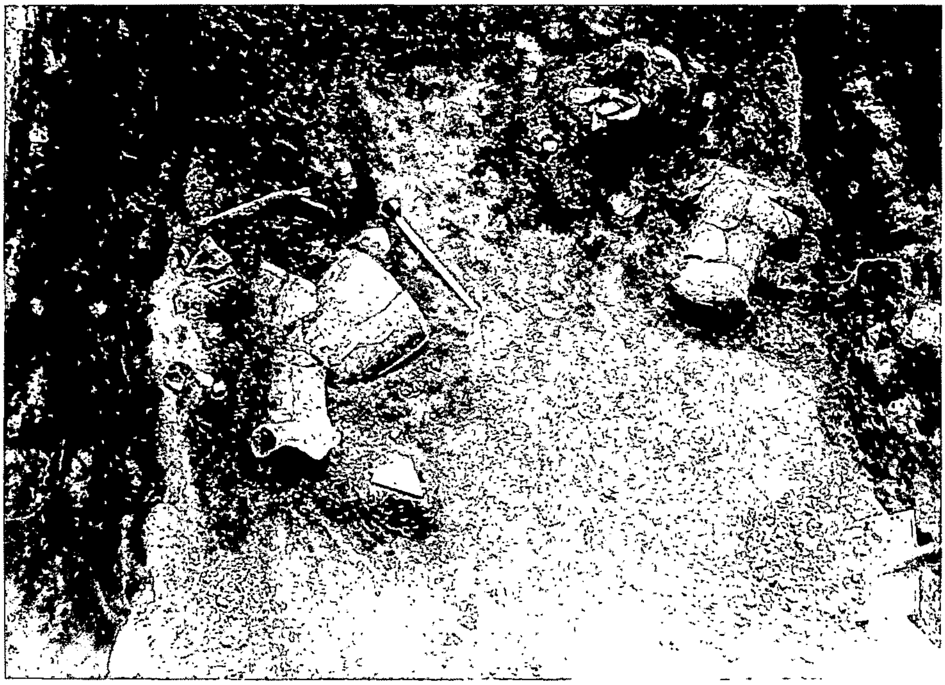


Fig. 4 *a*, Pottery vessel and *b*, "incense-burner" from Kitahara; *c*, "human-face" handle from Kitahara.



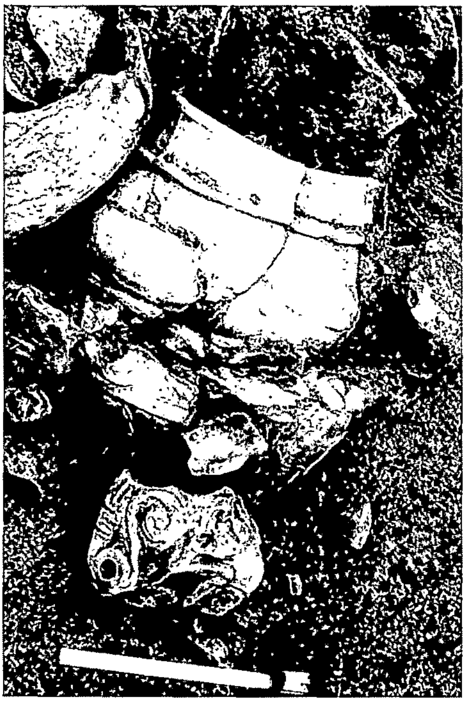


Plate I

a Pottery vessels exposed in trench, Kitahara.

b Barrel-shaped vessel covering pot with "human-face" handle and "incense-burner," Kitahara.

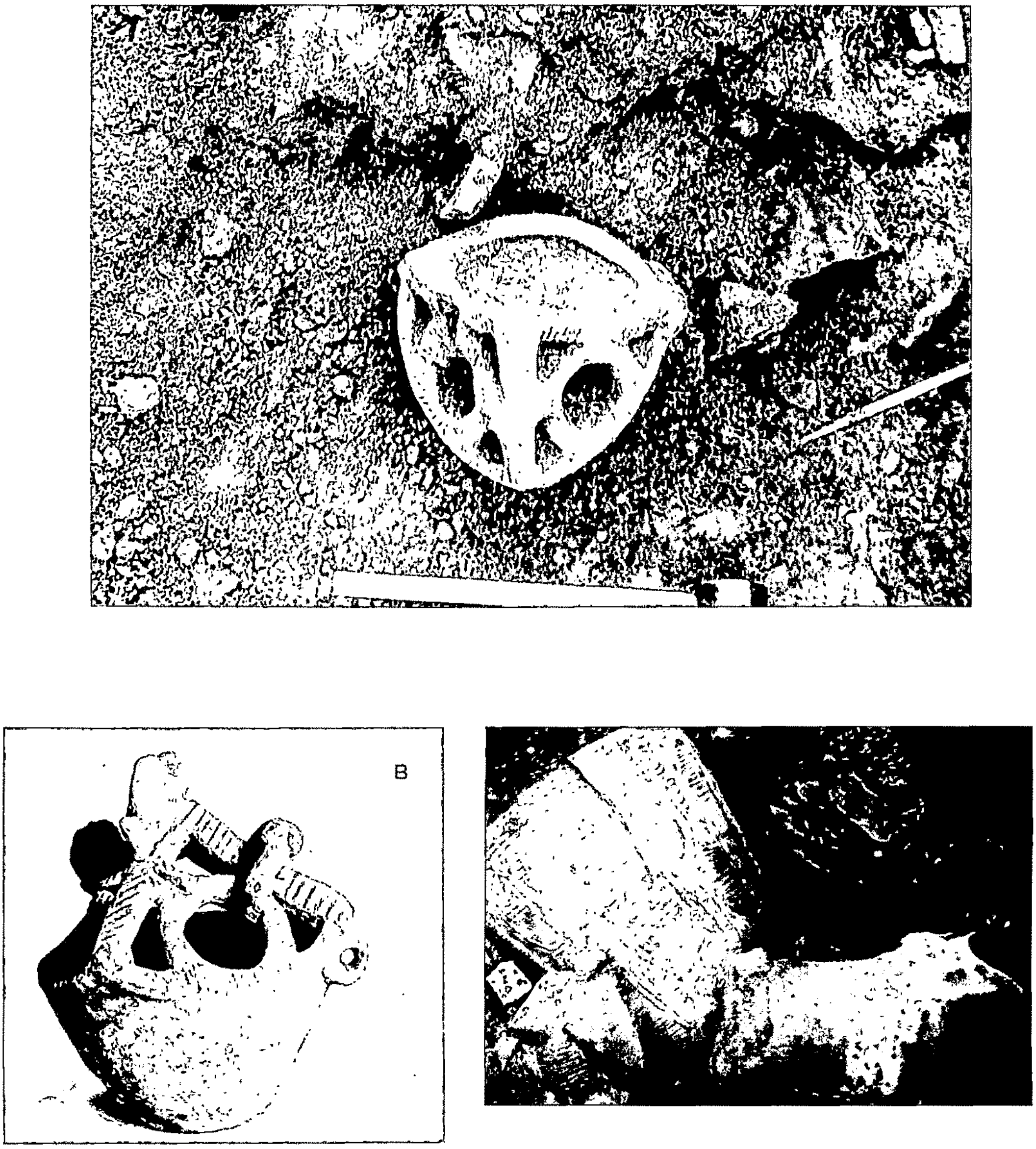
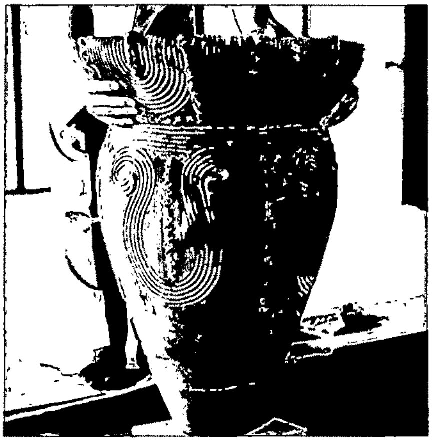


Plate II *a* "Incense-burner" exposed in ground, Kitahara.
b "Incense-burner", Kitahara; Ht, 20.3 cm.
c Six stone stools as exposed after removal of vessel, Kitahara.

Plate III *a* Pottery vessels in Trench B, Yanagida.
b Pottery vessels in Trench B, Yanagida.



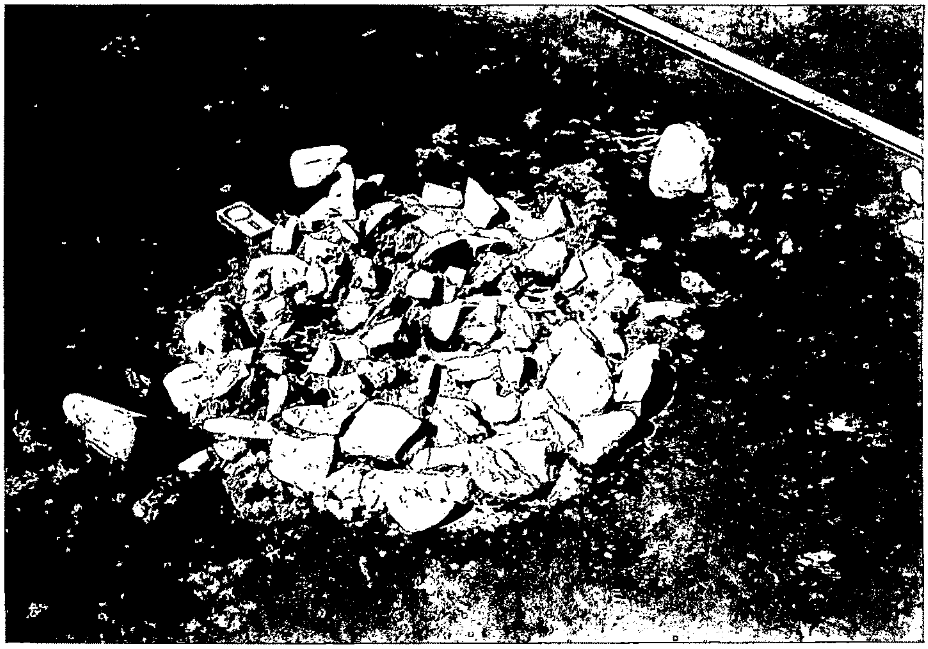


Plate IV

a Large pottery vessel found at Tonobayashi; scale shown by man behind it.

b Stone pile, Hino-fukiage site, Tokyo.

pits. Therefore, judging from this unusual juxtaposition of the vessels, it can be assumed that the spot was used ritually for the neighboring communities.

Yanagida

The site had been used for growing burdocks and is now a mulberry orchard. A small road runs across the northwest side of the site, and the area available for excavation was quite small, totalling about 18 sq. m. We were requested to dig because many sherds had been found at the time burdocks were being cultivated, and therefore we excavated a trench on the east part of the site, designated Trench A (6×2 m). The soil had been badly disturbed to a depth of 50 cm because of burdocks planting; 10 cm deeper we encountered a yellowish-brown sand layer that is peculiar to the local delta formation. This is the layer that contains relics. A large vessel whose diameter measures 50 cm was found on the west side of the trench; another vessel, this one lying on its side, was uncovered about 2 m north of the other. Trench B (6×2 m) was opened to the west of Trench A, and two groups of vessels were uncovered at either end of this trench (Plate III*a,b* and Fig. 5). In the southern group there were four large, deep vessels, one lying obliquely, the others, flat. One of the vessels contained a stone of granite the size of a human head. All of the vessels could be restored. They range between 60 to 70 cm in height and 40 to 50 cm in diameter.

Trench C (6×2 m) was dug between trenches A and B. Serious disturbance to a depth of a meter could be attributed to the fact that the spot lies in the center of the farmer's garden. On the north side of the trench, a group of vessels lay at a depth of 1.3 m. To the west of them was a very large pot resting in a fallen state, its mouth towards the north, accompanied by a stone the size of a human head. A cache of more than 20 vessels was recovered which, in such a small area, is nothing short of remarkable. A full day was required to remove some of the largest vessels. The upper part of each vessel had been sheared off, but the farmer's collection of sherds provided most of the pieces needed to restore them (Fig. 6, Fig. 7).

Certain features emphasize the unusual nature of the site: it was devoid of pits for houses, the vessels are phenomenally large; the vessels tended to be paired, or two were connected at the rims; some contained stones the size of a human head, or such stones lay nearby. The peculiarities of the site led us to regard it as a cemetery of the Middle Jōmon period (see Addendum).

Tonobayashi

The site was found by a local farmer in 1962. Having been told that an extraordinarily large pot had been dug up, I and my party decided to investigate the site. The site is located at the highest point on the bluff by the Monju River. We opened a trench (6×2 m) by the spot where the pot was unearthed, but very few artifacts were found, leading us to believe that the huge pot must have been buried by itself. We were told by the farmer later that there was one more pot with it, but it had been badly destroyed. However, the whole pot (Plate IV*a*) is complete and is said to have contained a stone the size of a human head in its bottom. The evidence points to its use as a burial jar; as mentioned above, a vessel given similar use was uncovered at the Yanagida site. At Tonobayashi, in the process of cultivation, the farmers found two fireplaces in addition to the vessels already discussed. The Tonobayashi pottery is largely of the Kasori E type.

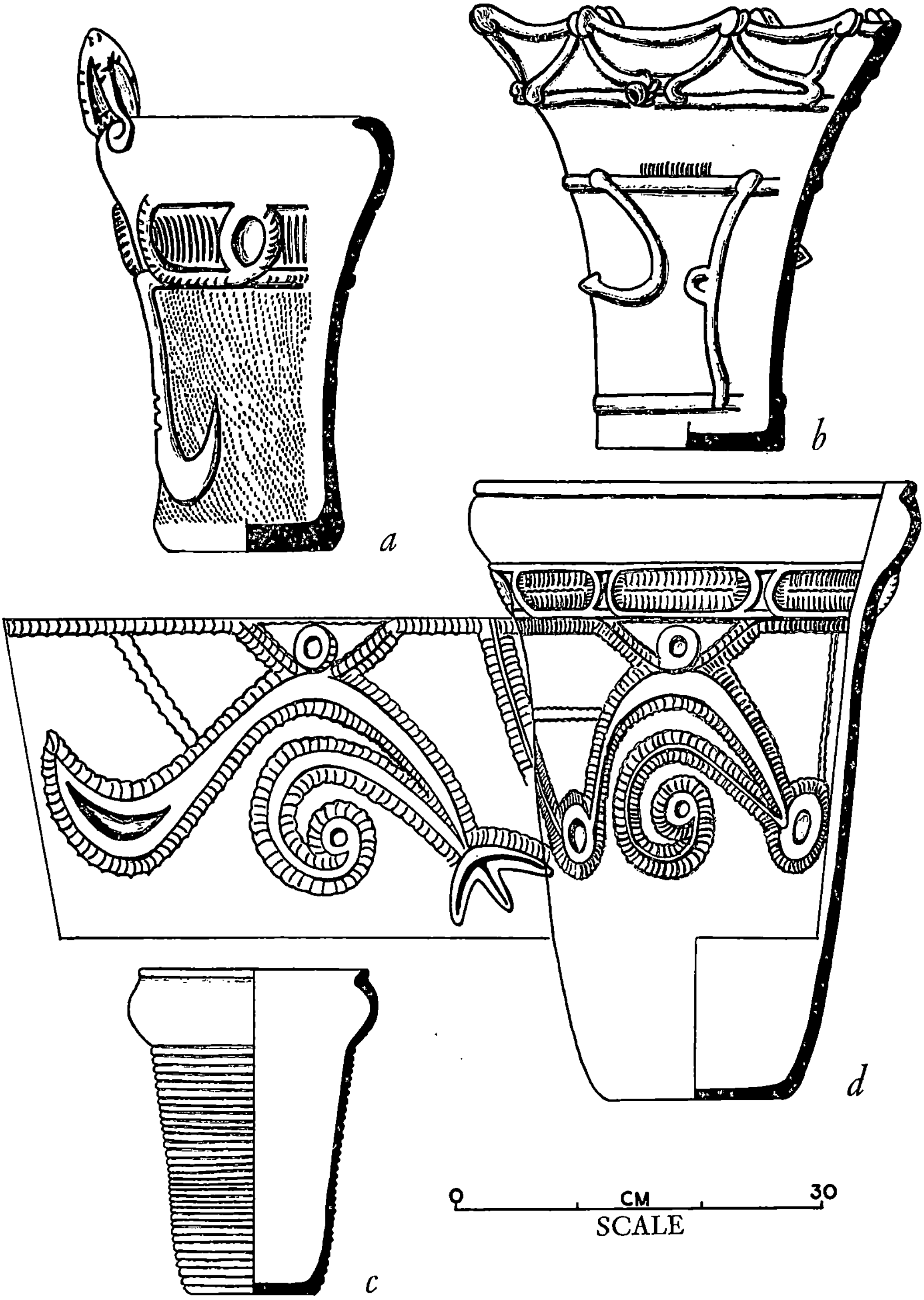


Fig. 5 Pottery vessels from Yanagida.

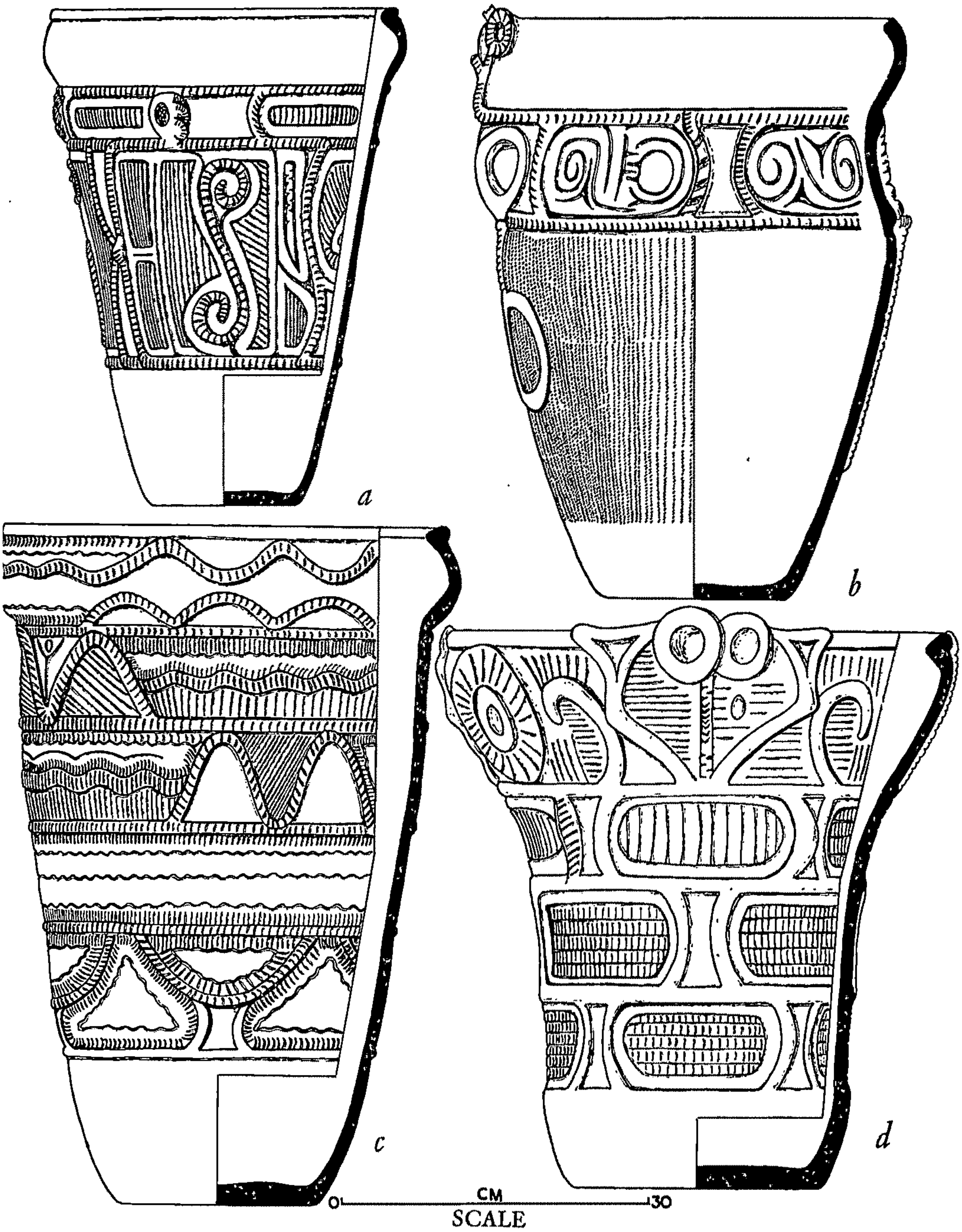


Fig. 6 Pottery vessels from Yanagida.

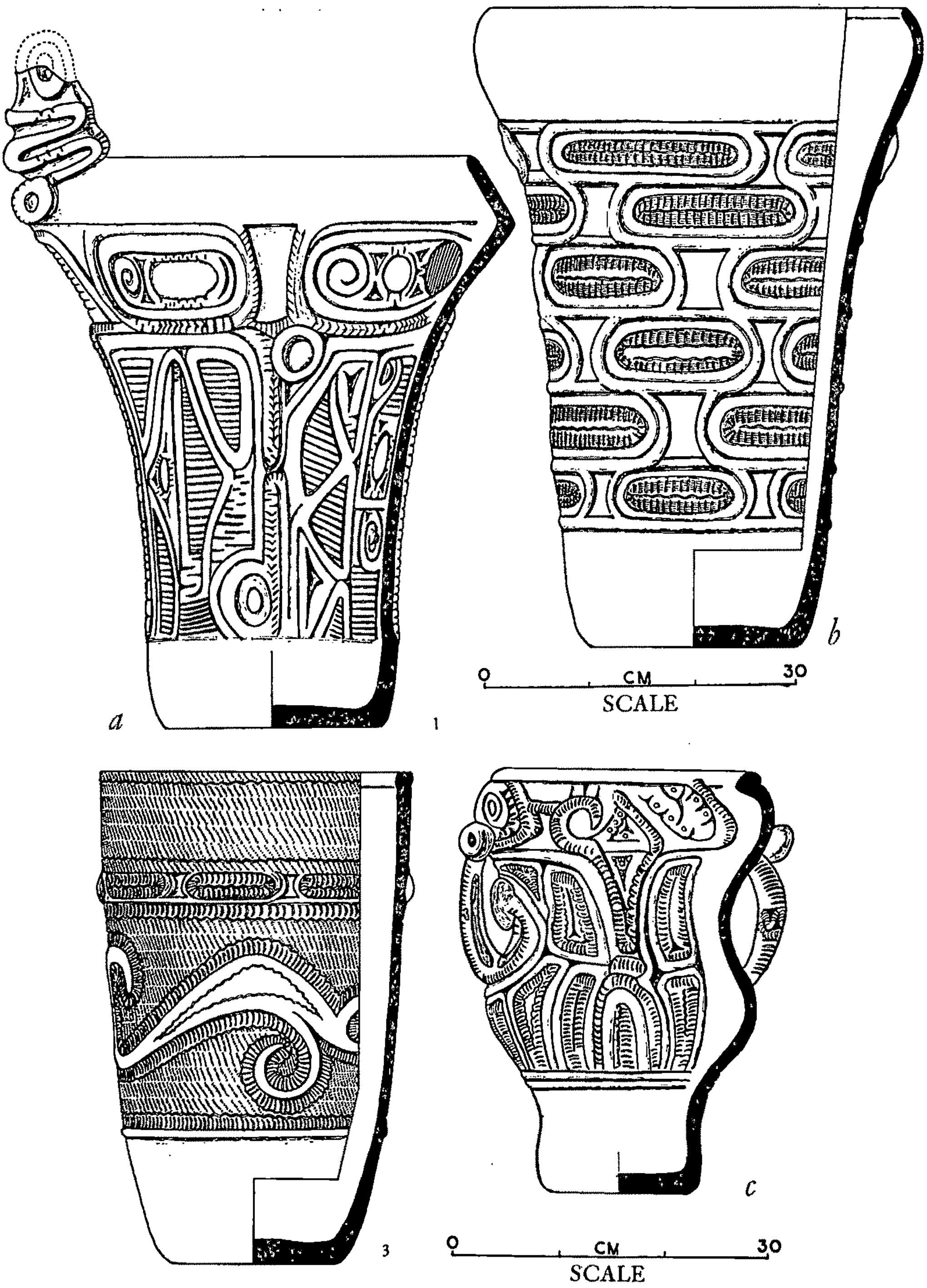


Fig. 7 *a,b,* Pottery vessels from Yanagida; *c,d,* vessels from Yanagida.

Otsukida

The site is located on the plateau to the north of the Omo River and was found while a road was under construction. It yielded a vessel with a hollow "human-face" handle and a bowl-shaped pot, both of the Katsusaka type. Although the site was not dug, it is included here because it appears to be unquestionably related to the others.

Each site has been briefly described; further excavation will probably reveal more material and present new ideas with which to work. It seems to me that the entire area eventually may be recognized as a large village, but until now, only one pit house has been uncovered. All the pottery can be classified either as Katsusaka or Kasori E, implying continuous use of the area. The relative sequence of the sites may be established on the basis of the pottery typology outlined in the chart below. The oldest site of the group is Yanagida since the earliest pottery was found there; probably contemporary with Yanagida is Otsukida, followed by Kitahara with Katsusaka II; slightly more recent is Jūrobara with Katsusaka II, Kasori E II, and possibly other subtypes; the most recent site is Tonobayashi with Kasori E I and II pottery types.

	POTTERY TYPE					
SITE	Katsusaka			Kasori E		
	I	II	III	I	II	III
Yanagida	(x)	x	x			
Otsukida		x				
Kitahara		x				
Jūrobara		x	?	?	x	
Tonobayashi				x	x	

NEW CULTURAL TRAITS

The transition from the Early to the Middle Jōmon period illustrates certain logical developments in regard to pottery types. Middle Jōmon vessels have a characteristic morning-glory shape. The prototype of this shape had already appeared in the Early Jōmon's Morioso stage (or subtype Yonmaibata), but similarities between the Early and Middle periods stop with pottery, and with the basic shapes at that. Any detailed analysis of the Middle Jōmon culture exposes the dangers of attempting to explain the differences between the two periods as normal cultural evolution. Some important new traits are examined briefly below.

Village Sites in the Katsusaka Stage

Only one pit dwelling and two fireplaces were uncovered at Kitahara and Yanagida. This is in itself unusual, since in other known examples, if one may compare them with communities of the previous period, villages were organized on a remarkable scale. The distance from Tonobayashi to Otsukida is about 1500 m, while the width of the site measures between 500 and 1000 m. Sherds are scattered over the entire area and beyond for about 2000 m, indicating that it is therefore a site of far greater dimensions than any other of the same period. Comparative statistics of other sites graphically point up this fact:

SITE	NUMBER OF PIT DWELLINGS	SIZE IN METERS
Idojiri	79	150×100
Togariishi	33+38 (firepits, perhaps of houses)	200×100
Yosukeone	28	200× 50
Hiraide	17+49 (Haji)	500×200
Sakai	17	350×200
Hino-fukiage	11	500×500

Snake Decoration

Katsusaka pottery often bears decoration that ranges from quite abstract to highly realistic representations of snakes (Plate V), although the extreme form of the latter are rather infrequent. Examples of all varieties are to be seen in Nagano, Yamanashi, and the southwest Kantō. It is not easy to explain why the snake was used this way in the decoration, but it customarily appears in ancient art forms where agriculture began. The coastal Otamadai culture of the Middle Jōmon period found no place whatsoever for the snake motif, a lack that could in all likelihood be explained because of differing methods of securing food (see Addendum).

Jar Burials

Large vessels were often used for burial purposes. No human bones were discovered in or by any pots found in Katsusaka stage villages, but in some other sites, particularly in shell mounds, bones have been recovered from pots. At Samukaze shell mound, Matsudo, Kashiwa City, Chiba Prefecture, a large jar 61.5 cm in height contained the bones of an adult; at Kugurizaka, Asamushi, Aomori City, 12 deep vessels were found in a row and each contained the bones of an adult; at Tsunagi, Morioka City, Iwate Prefecture, a group of vessels was discovered with holes in their bases; at Fujinuta, Sakaigawa village, Higashi-yatsushiro County, Yamanashi Prefecture; and Kamikurokoma, Misaka-machi, Higashi-yatsushiro County, Yamanashi, about 10 vessels were lined up in a row. None of the Kamikurokoma vessels contained bones, but conditions allowed the site to be regarded as a cemetery. All are Middle Jōmon sites, except Kamikurokoma, which is early Late Jōmon. Although no bones were found in the jars at the sites—bones are rarely preserved in Japan's damp soil—a group of large vessels may be considered to be a kind of cemetery. The Jōmon inhabitants may have designated areas properly removed from the village by a certain distance as burial grounds and buried their dead respectfully in large pots. This kind of practice inevitably leads one to believe that the people stayed in the area long enough to organize a stable, relatively sedentary society.

Stone Piles

Stone piles are popular in Middle Jōmon sites, although none has been found at Kitahara. I excavated several near the pit dwellings at Hino-fukiage that consisted of fist-size stones arranged in a circular manner (Plate IV*b*). The stones were baked red by fire. Therefore, the stone piles may have been used in some way for cooking, but the function was still somewhat different from the function of a fire pit. Possibly, starch was spread on the leaves of oak or other trees and was baked between two *ishizara* ("flat grinding stones"). Stone piles have also been found in the International Christian University (I.C.U.) site, Tokyo, and they were

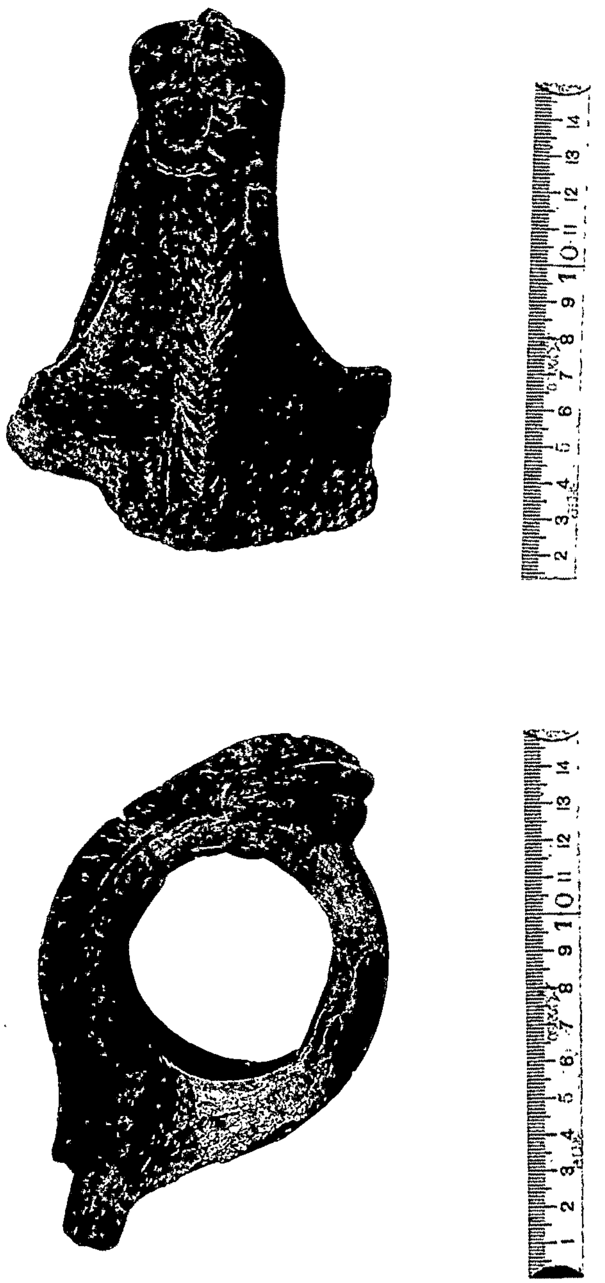


Plate V Snake motif on Katsusaka pottery.

probably used in the preparation of food such as starch, which was impossible to cook by direct fire.

Chipped Stone Tools

The chipped stone implements of the Middle Jōmon period were often made of soft stone. The illustrations show rectanguloid shale tools excavated from Kitahara (Fig. 8, *b-g*). The stone is fragile and has a hardness of about 3 on the Mohs scale, and even after having been worked, it was not suitable for heavy duty. This leads me to believe that such tools were used for digging roots and that the indisputable quantity of them in Middle Jōmon sites is convincing evidence of mass cultivation of edible plants. However, three of the stone implements (hōchō) from this site are well shaped for cutting and preparing foods (Fig. 9*a, c*).

Incense-Burner and Barrel-Shaped Vessels

The group of vessels at Kitahara, which included the object shaped like an incense-burner, were uncovered in a very peculiar relationship to each other that suggests that they were probably used in a ritual manner. The vessel with the "human-face" handle has a carbonized material adhering to its inner surface; on this surface multidirectional striations can be seen that more than likely were made when a stick was used to stir a potful of liquid. I suggest that the "human-face" vessel was employed for fermenting fruit wine and that the barrel vessel was used for its storage. Then, the wine was put ceremonially in the incense-burner, and it was placed in a sacred location. For some unclear reason, the pots were left buried as they were.

Other incense-burners of the Middle Jōmon period have been found at the following sites:

Sori, Fujimi-chō, Suwa County, Nagano Prefecture
Idojiri, Fujimi-chō, Suwa County, Nagano Prefecture
Fudasawa, Fujimi-chō, Suwa County, Nagano Prefecture
Ōmiyama, Kawakami Village, Minamisaku County, Nagano Prefecture
Narahara, Hachiōji City, Tokyo
Mukobara, Hachiōji City, Tokyo
Hachiman Jinja, Igusa, Nerima Ward, Tokyo

Barrel-shaped vessels, on the other hand, have a much wider distribution. The function of such vessels, to judge from the small holes around the rim, was to hold fermented liquid. The vessel from Kitahara shows no evidence of having been used over a fire, so it could hardly have been a steam pot. A similar assemblage is reported from Idojiri (Fujimori 1965: 27), and it is also considered to be a ritual site. One vessel in the Idojiri set is barrel-shaped.

Katsusaka Agriculture

The Katsusaka culture is materially rich by Jōmon standards, a stage that may have been reached as a result of favorable climatic and (therefore) economic conditions. Such a level of living may have been the result of the population's plant cultivation, but there are no clear clues as to which plants may have been cultivated, since the soil of the central mountains has not preserved the evidence. But I presume that the inhabitants grew some sort of *taro,* or at least there was more likelihood of *taro* than of a millet. Taro is grown today in the region and if it is not indigenous, it certainly is an introduction that preceded millet and rice. The long rectanguloid tools would be good for digging root plants, and the hōchō-shaped tools have

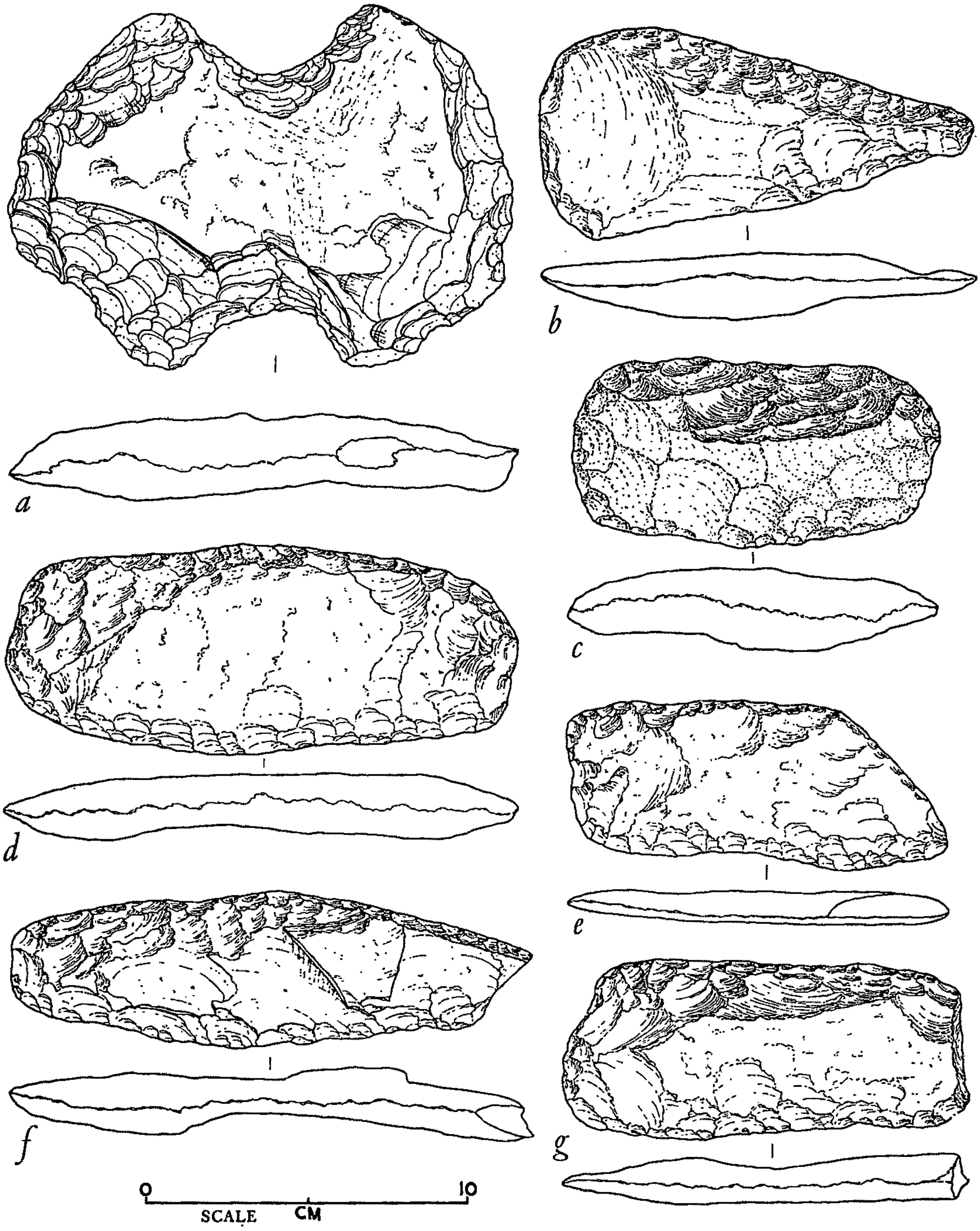


Fig. 8 *a*, Stone tool from Tonobayashi; *b-g*, from Kitahara.

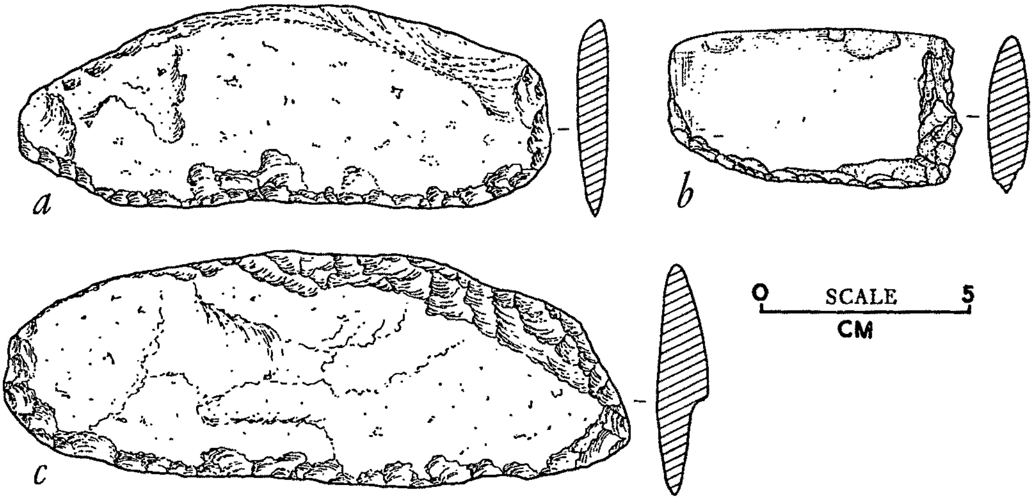


Fig. 9. *a,c,* Stone knives from Kitahara; *b,* from Jūrobara.

jagged edges, the result of use. The Middle Jōmon sites are almost always covered by Haji period (Onitaka stage) sites and are also where modern people keep their kitchen gardens today. When iron came into popular use in the Haji period, the inhabitants began to cultivate higher fields than the rice paddies to increase production. This spatial overlap should have some bearing on the question of Katsusaka agriculture. But, while it is unlikely that agriculture supported the Katsusaka people entirely, it is even more unlikely that hunting, fishing, and food collecting was their exclusive support because of the mountainous terrain and the general scarcity of food in winter. Thus, it is quite natural for us to assume that the people knew how to make starch, which can be preserved well. It is easy to mash potatoes, but to extract starch from them, one needs plenty of water and large water containers. Therefore, Katsusaka men chose dwelling sites where water supplies were ample. The technique of making starch was not easy, but once it was learned, food problems were no longer serious. It must be this phenomenon that made it possible for the Katsusaka culture to develop rapidly and vigorously.

ADDENDUM

A vessel bearing the realistic decoration of a snake was found in the second excavation of the Yanagida site in the summer of 1967. The pot is otherwise only cord-marked. The snake runs vertically the length of the pot and is arched to form part of the handle at the rim; the head of the snake is at the top and faces inward.

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"Chʻü-chia-ling" and the Early Cultures of the Hanshui Valley, China

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INTRODUCTION

THE purpose of this review is to provide anthropologists interested in the culture history of Asia with a preliminary definition of prehistoric–early historic developments in the Hanshui Valley, China. The review's most significant theoretical aspect is that it presents but one example of the kind of localized experimentation, adaptation, and elaboration that has produced the cultural mosaic of historic Asia.

The archaeological importance of the Hanshui Valley and the middle Yangtze Plain (central Hupei and northern Hunan provinces) has only recently been recognized. The first indications of significant agricultural settlement were discovered in 1954 in the Chingshan district (see Fig. 1). Attention was directed to these sites because of the certain identification of paddy-rice farming, and even in 1954 the intensely local nature of the Neolithic–Early Historic culture was evident.

By 1960, excavation and survey had extended eastward into the Huangpʻei and Chʻi-chʻun districts (east of Hankow) where bronze age continuation of related neolithic materials was found. In 1961, extensive archaeological work was reported from the districts of Yun and Kun, near the Hupei-Honan-Shensi border along the upper and middle course of the Hanshui. Several rich sites, apparently stratified, and adequately reported, can now be described.

The importance of the Hanshui Valley Neolithic–Early Historic culture is established on two counts: (1) it represents the first appearance of an intensive rice-growing economy, and (2) it is an original, localized cultural development in relationship to both the lower Yangtze and Chungyüan "spheres of influence." [Chungyüan is considered to include the middle Huangho drainage and plains.] Although the exclusively "neolithic" quality of the Hanshui Valley culture is questionable in chronological terms, it may possibly be evaluated in terms of ethnohistorical development.

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As we come to recognize the many foci of prehistoric and early historic cultural development in China, any extrapolation from culture sequences particular to the Chungyüan to other regions—especially regions of dramatically different ecological opportunities—should be seriously questioned. Inasmuch as this extension has now been stretched so thin as to embrace Southeast Asia as well, the chronological implications of the sequence also requires reevaluation. In dealing with a literate tradition such as China's, the tendency to make cultural assessments on the basis of dynastic history alone is as prejudicial and inaccurate as any "great man" theory of history. Just as the dynastic succession of Shang and Chou masks the previous history and contemporaneity of both cultures (and probably dozens more) the Chungyüan sequence of Yangshao, Lungshan, Shang disguises the dynamics of the historic process.

If the stratigraphy described below is reliable, then a rough chronology can be suggested. The major implication of this chronology is to point to the difficulties involved in using the "Lungshanoid" horizon concept—a horizon without clearly defined temporal beginnings—that ends in some areas as Shang takes over, in others with the civilizing forces of Western Chou, and in yet others probably persists for centuries as the "little tradition" in the classic peasant-village context. The basic materials will be presented before any further conclusions are drawn.

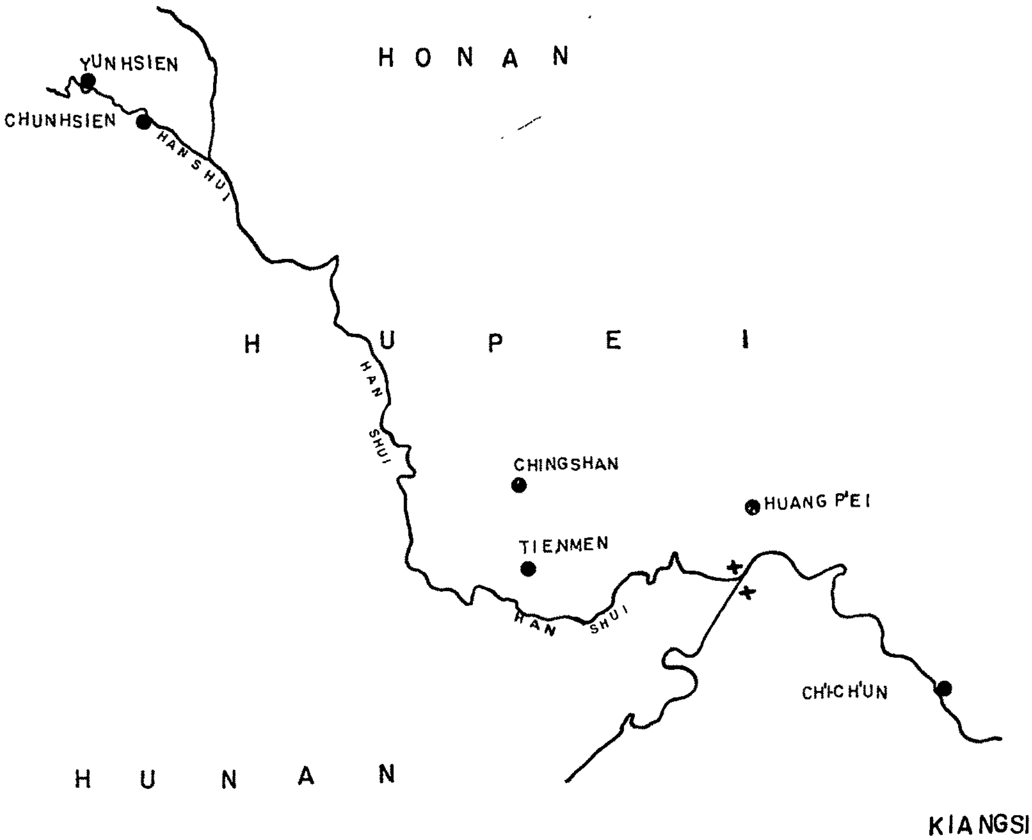

Fig. 1 Sketch map of Hanshui Valley showing districts in which sites are located.

BASIC MATERIALS

The information presented is taken only from reported sites where stratigraphical relationships are securely demonstrated; the terminology of the Chinese reporters will be retained in this presentation although there are serious questions that involve the criteria used in establishing typological categories. The "culture" itself is often referred to as "Ch'ü-chia-ling" after the type site first discovered in the Chingshan district.

Chingshan

Eighty sites were discovered in the Chingshan district during the preliminary survey (*KKTH* 1956, 3; *WW* 1955, 4:41–46). The site of Ch'ü-chia-ling was located in the southwestern part of the district along the eastern bank of the Chingmu River.

At the beginning of the investigations, previously exposed (and disturbed) sections were studied, and during the 1956–1957 excavations, a total area of 858 sq. m was uncovered (Science Press, *Ch'ü Chia Ling, Chingshan* 1965). Several related levels were observed; among them, the excavators have distinguished two clear stratigraphical-cultural components. The excavators called these levels early and late and, on typological grounds, have further subdivided the late period into late I and late II. Ch'ü-chia-ling is a very rich site with stone, bone, and pottery refuse in a cultural deposit that is 3 m in thickness.

The stone tools found at Ch'ü-chia-ling show some chronologically significant variation that is most apparent in the addition of new types, rather than new techniques, of manufacture. In the late period, there is a continuing tradition of chipping and pecking in the manufacture of axes and adzes, while polishing techniques are generally reserved for the use-edges of these tools. However, there is a trend towards smaller tools, and some of these do show allover surface polish. Some very finely worked pieces of mottled stone are in the latter group. Also in the later periods, the frequency of flat, perforated axes increases, and stone and bone arrowpoints appear to be more plentiful (see Figs. 2–6).

Five classes of pottery are recognized in the report:

Fine-tempered grayware is made of relatively soft paste. The pots are undecorated except for perforations (oval, round, crescentic, triangular, and rectangular) that surround the base, the shoulder, pedestal, or mouth section. A few pieces had fine cord-marking as well. Vessel shapes included ring-footed *tou*, small *ting* tripods, *kuan*, and little flat-based bowls. There were also spindle whorls in this pottery category, and one incised "ball."

Fine blackware is made of paste free of particles, and the surface is burnished. This ware is unmistakable, as surface and core are completely black, and the wall thickness is only 0.2–0.3 cm. These pots were all wheelmade, and are generally small. Vessel shapes included small *yu*, round-based bowls, and tripods. There were some tapered jars and one tubular-shaped piece of 1.5 cm in length that may have been a decorating tool. A single black sherd was slipped in white and painted in red and black.

Redware is divided into categories according to kind and size of temper. The coarser ware had walls averaging 0.5 cm in thickness, usually cord-marked or decorated with geometric stamped designs. Pottery shapes in the coarse ware included ring-footed vessels and wide-mouthed *kuan*, flat-based pots, and tripods. The fine-tempered redwares had thinner walls (0.19–0.2 cm) and generally had black slip on the exterior surface. These pots are relatively rare and are decorated with incised patterns. There is also a very gritty red pottery with cord-

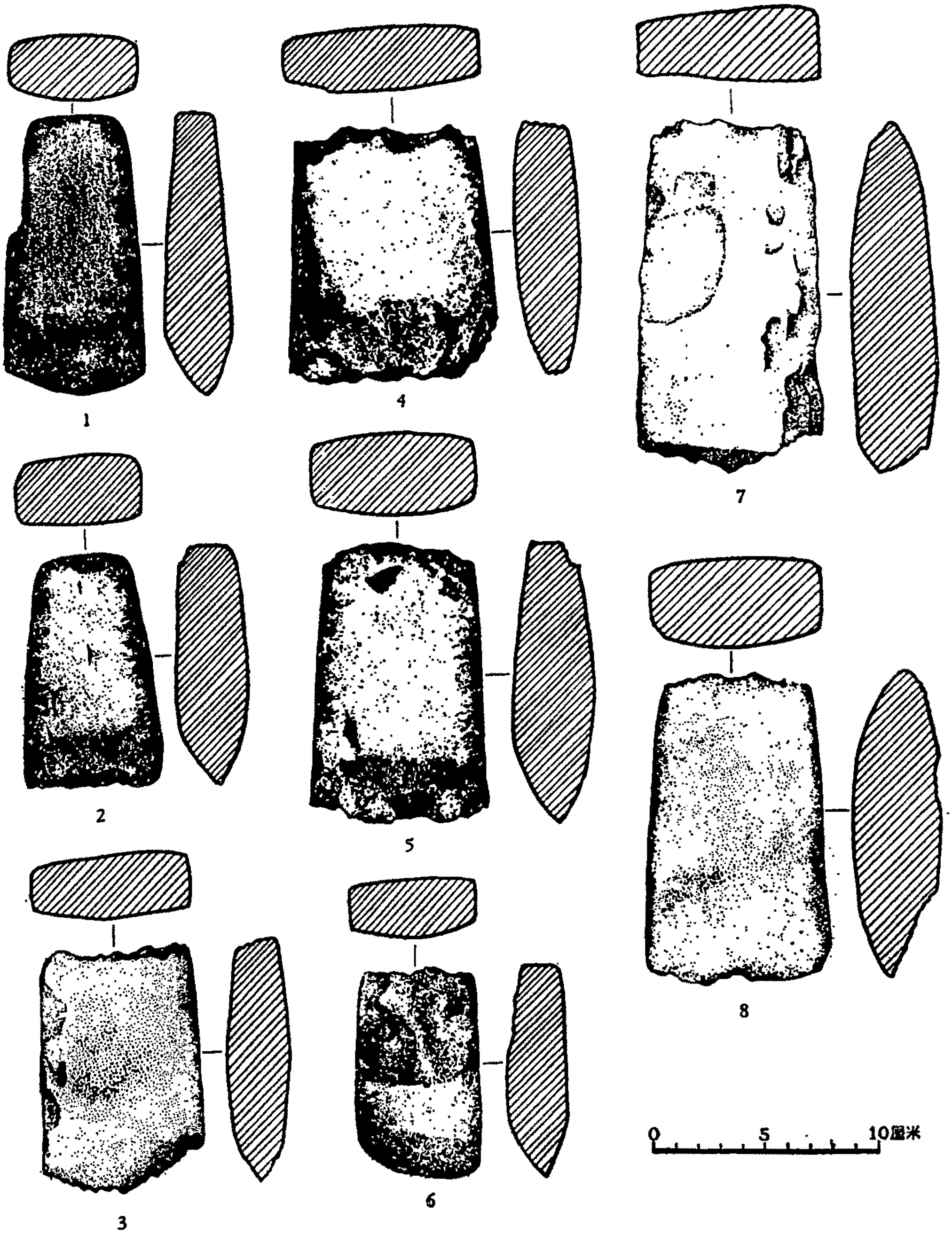

Fig. 2 Stone axes, early period (from Science Press, *Ch'ü Chia Ling, Chingshan* 1965: p. 13, Fig. 7).

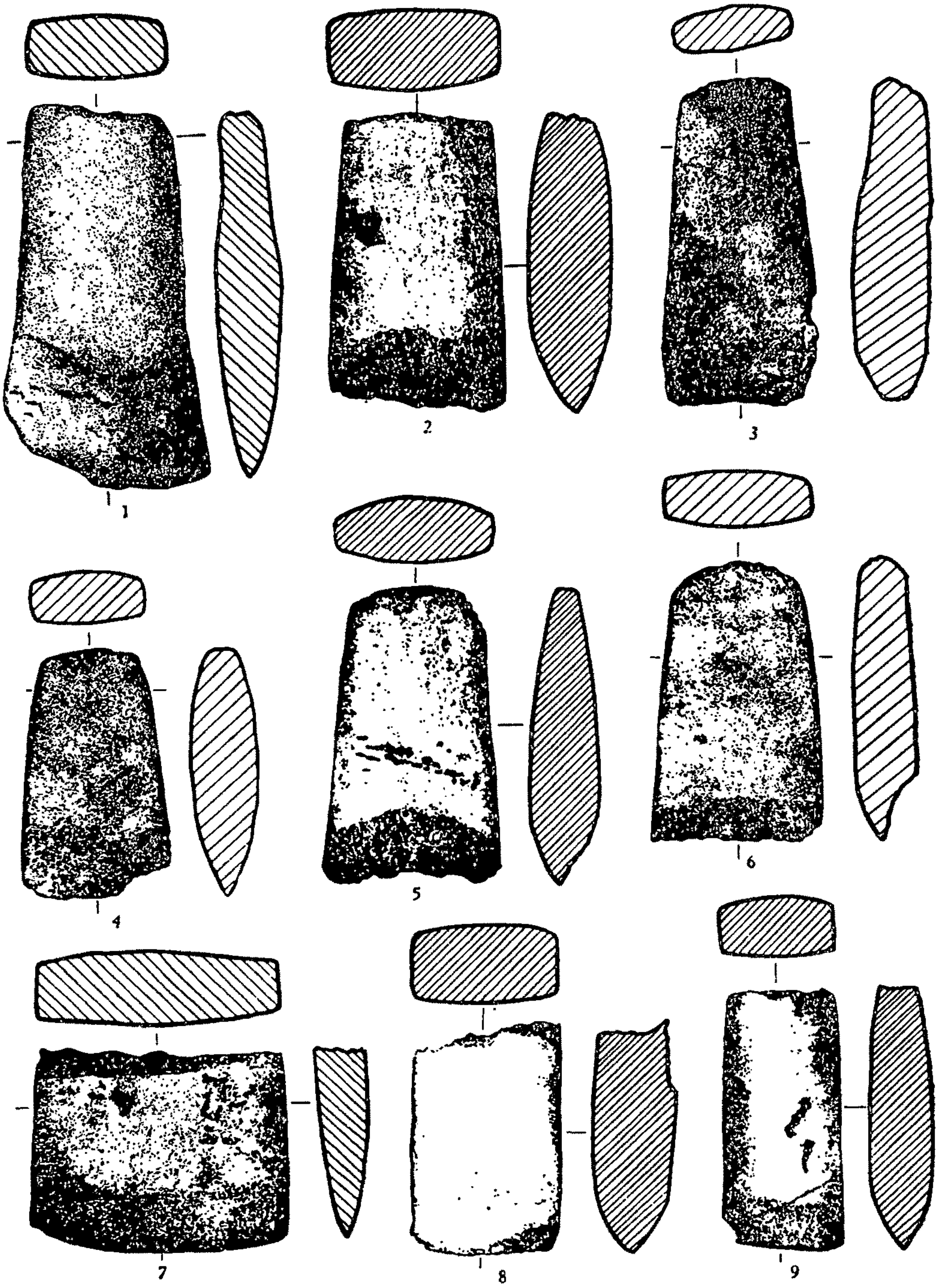

Fig. 3 Stone axes, late period I (from Science Press, *Ch'ü Chia Ling, Chingshan* 1965: p. 26, Fig. 17).

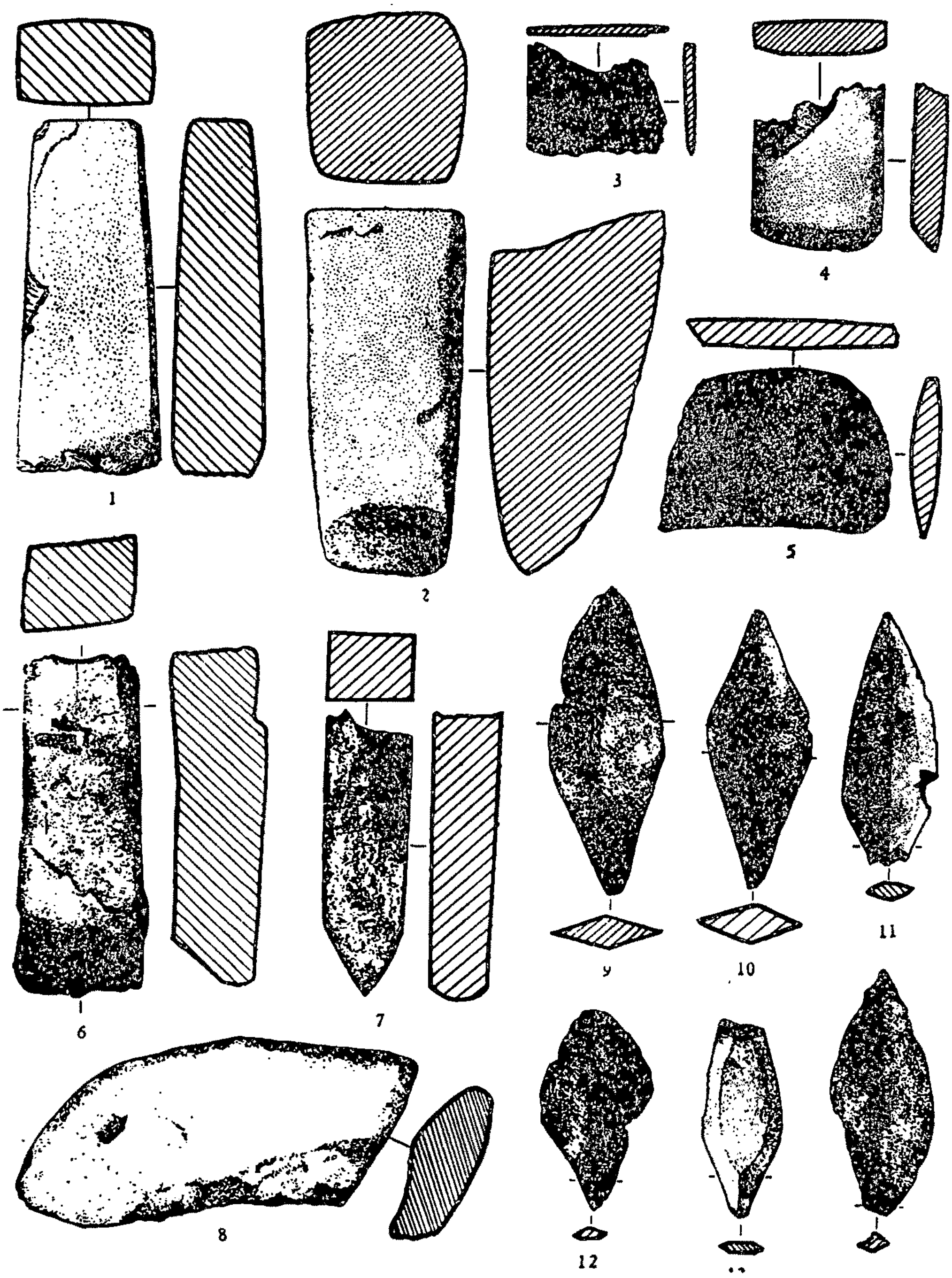

Fig. 4 Stone adzes, knives and points, late period I (from Science Press, *Ch'ü Chia Ling, Chingshan* 1965: p. 28, Fig. 19).

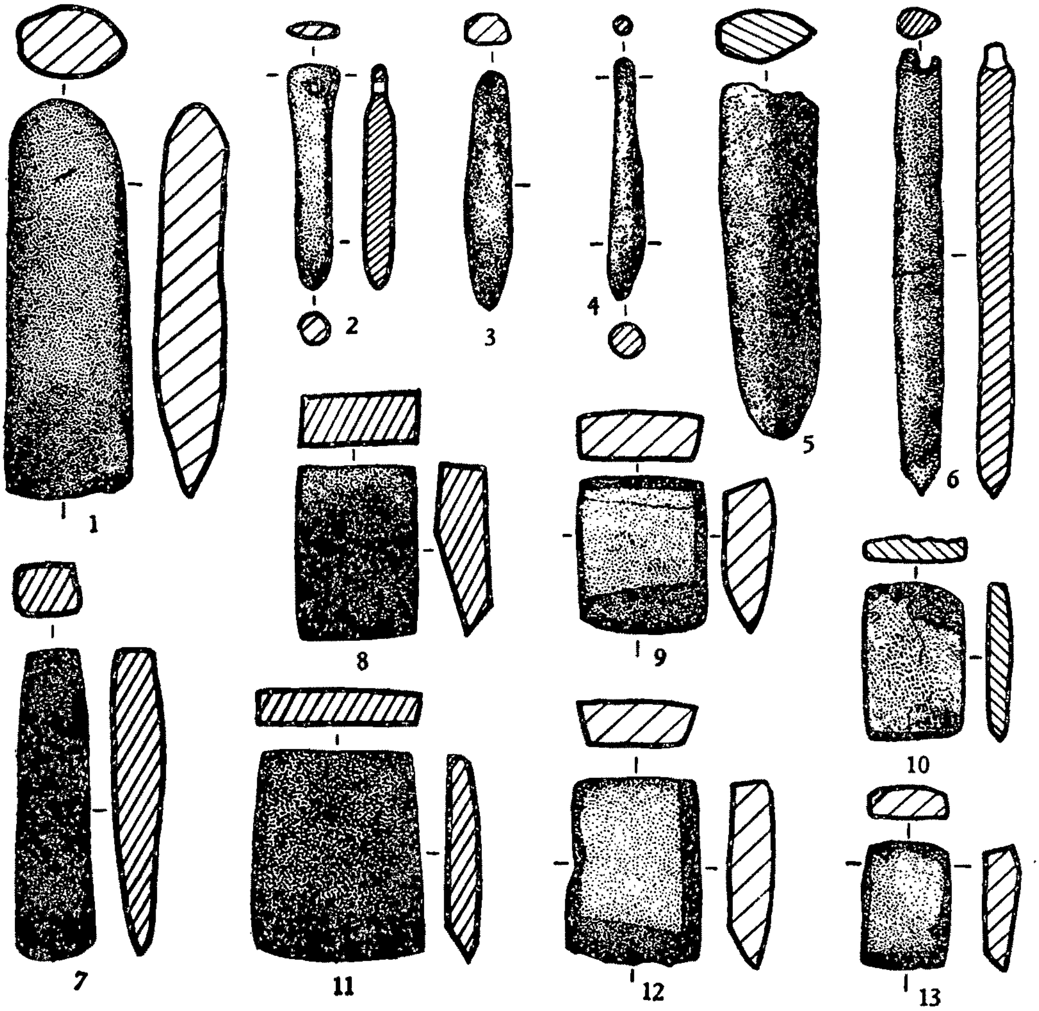

Fig. 5 Small ground stone tools, late period II (from Science Press, *Ch'ü Chia Ling, Chingshan* 1965: p. 45, Fig. 33); numbers 2 and 4 are ceramic objects.

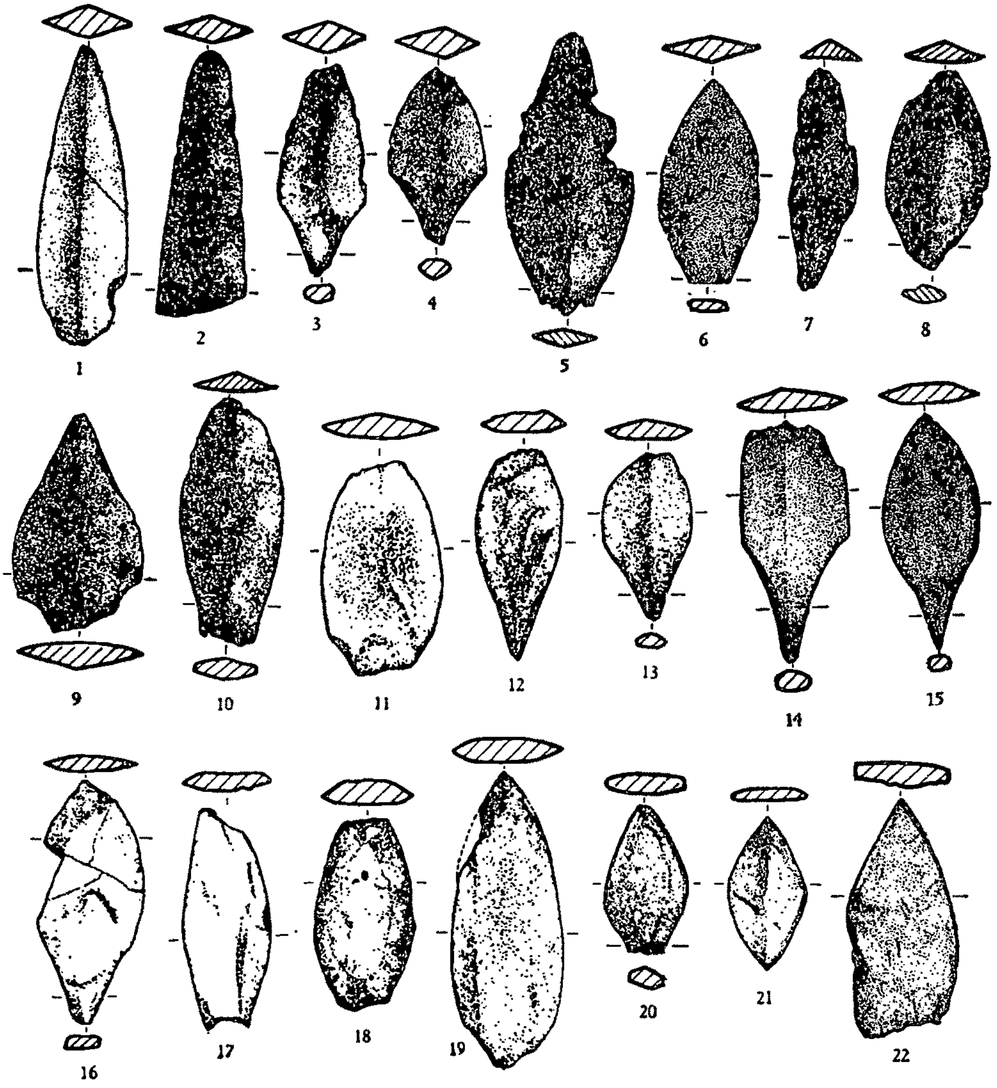

Fig. 6 Stone points, late period II (from Science Press, *Ch'ü Chia Ling, Chingshan* 1965: p. 43, Fig. 32).

marking, appliqué and geometric stamped decorations. In this ware, the tapered *p'ing* was a favorite shape.

Painted "egg-shell" pottery is the most unusual type, and is later identified as a "horizon marker" for Ch'ü-chia-ling culture. These vessels are made of a pure, washed clay of gray or gray-white color (although some fire orange-red) and the walls are very thin (ca. .05 cm). The only vessel shape in this ware seems to be the small open bowl. It is wheelmade, the surface is slipped in black or red, and it is sometimes burnished.

Stratigraphically, the pottery of the early period is dominated by the grayware, while everyday utensils continue to be made in the coarser redware; the painted pottery and fine black pottery is limited in frequency, but there is a wide variety of shapes represented in these more delicate wares. The later period extends this range even further, including vessel shapes that are not known in any other regional context (see Figs. 7–10). The period is additionally marked by the appearance of the painted-pottery spindle whorls (see Fig. 11).

Tienmen

In the district of Tienmen the very important site of Shih-chia-ho has been excavated (*KKTH* 1956, 3:11–24). Although reported only in preliminary fashion, the earlier phase of the occupation at Shih-chia-ho has been correlated with Ch'ü-chia-ling. In fact, this "site" is a complex of four locations on a sloping hill which rises 2–4 m above a river-cut ravine. The site occupied 3,000 sq. m, of which 1,400 were excavated.

The following three cultural periods were differentiated on the basis of stratigraphy:

A. Artifacts found in this late period deposit included jades, bronzes, and clay figurines of animals and birds. The jades—tubes, bracelets, and rings, anthropomorphic and dragon forms, cicada and phoenix—are clearly of Chou style and can be dated 1027–770 B.C. Bronze objects included one whole *chien* sword and several fragments. There was an assorted burned red earth area that was supposedly a metal-working area (smelting or molding).

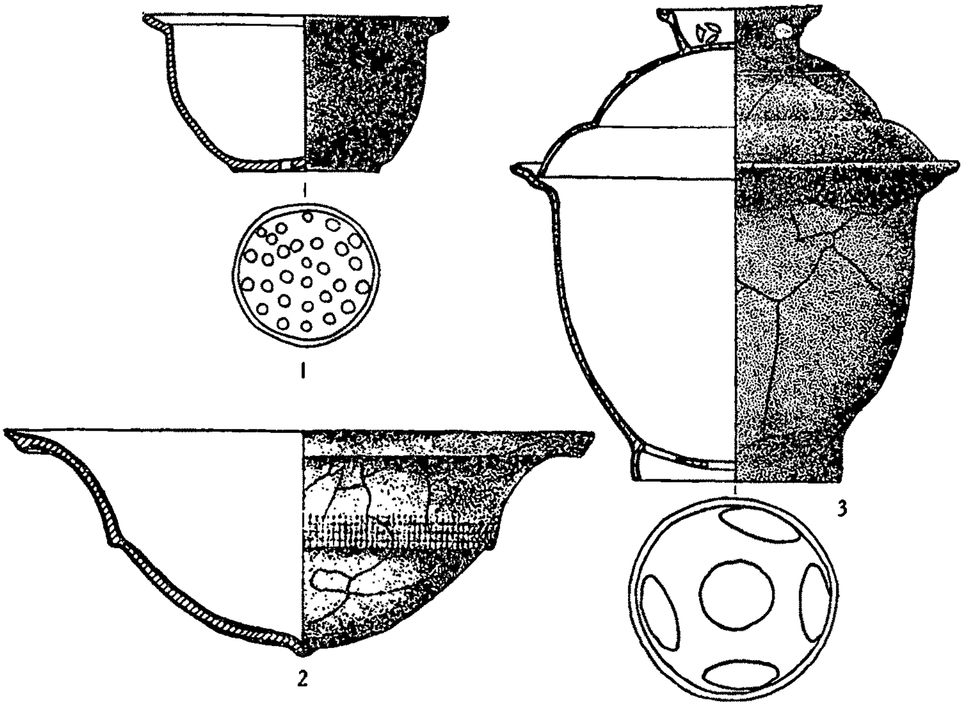

Fig. 7 Pottery vessels, late period II (from Science Press, *Ch'ü Chia Ling, Chingshan* 1965: p. 49, Fig. 39).

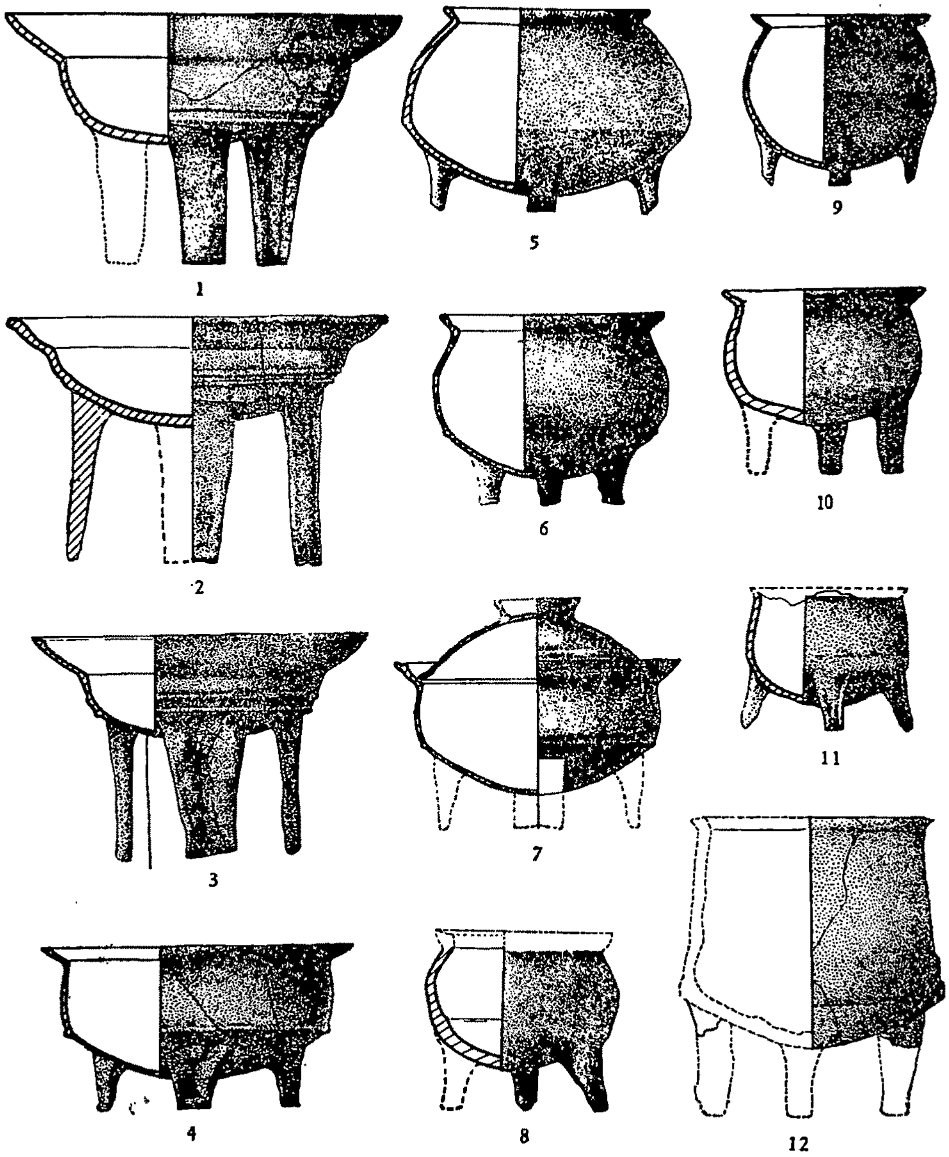

Fig. 8 Pottery tripod vessels *(ting)*, late period II (from Science Press, *Ch'ü Chia Ling, Chingshan* 1965: p. 50, Fig. 40).

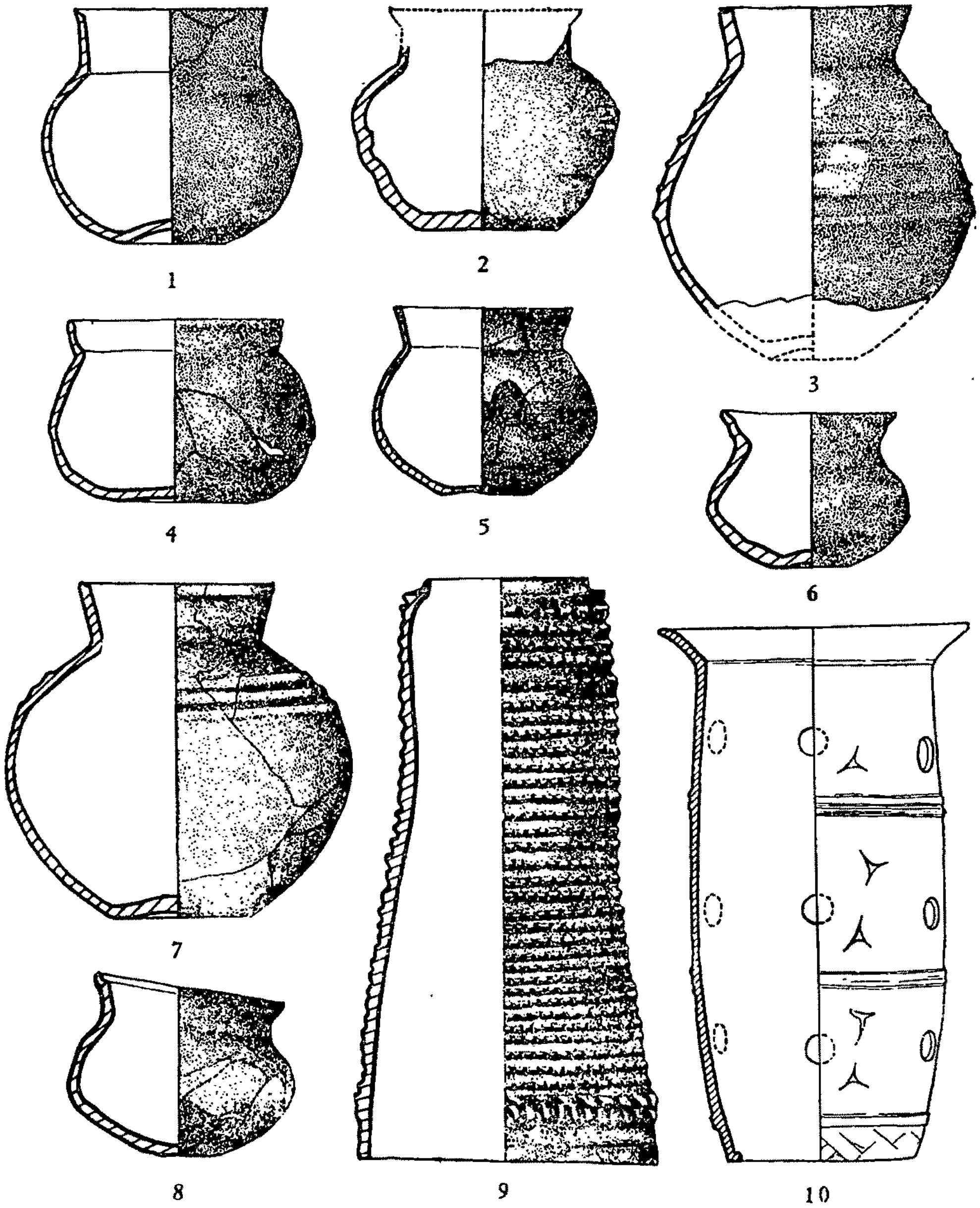

Fig. 9 Pottery, late period II (from Science Press, *Chʻü Chia Ling, Chingshan* 1965: p. 61, Fig. 48).

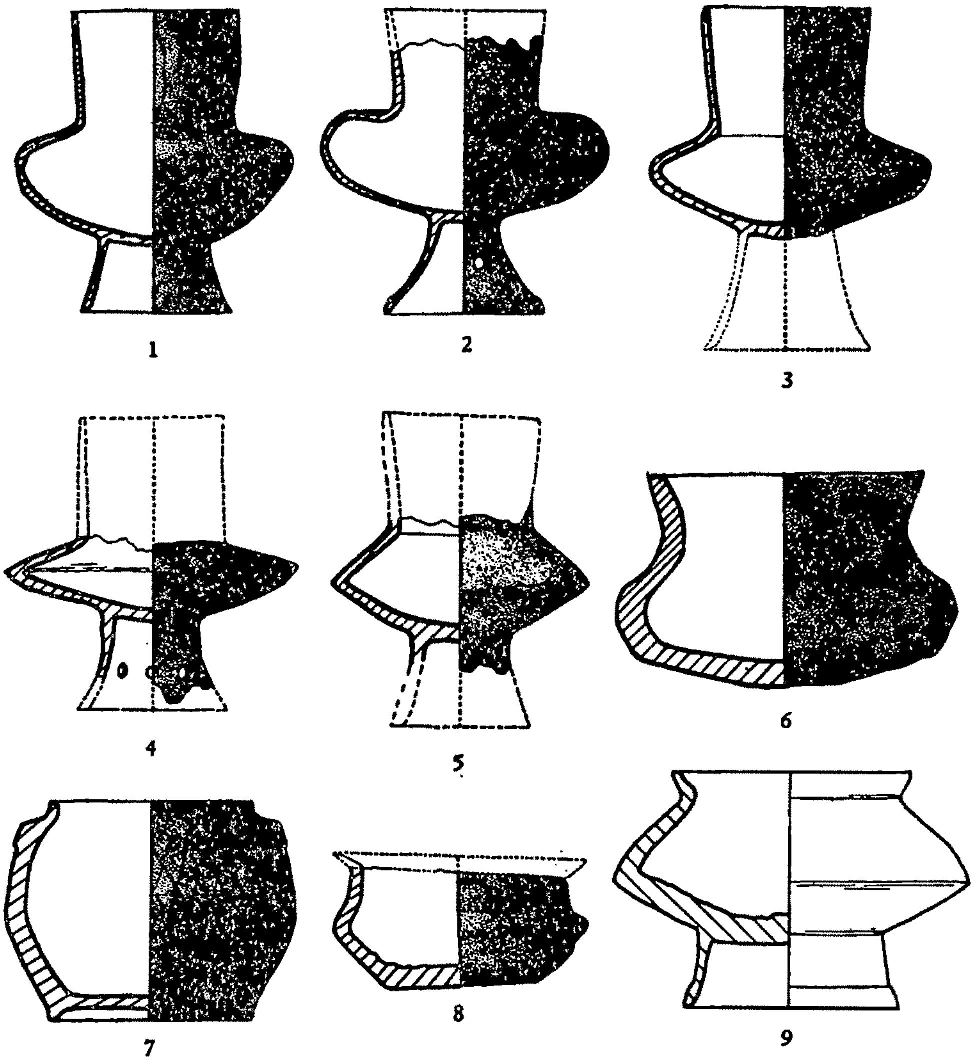

Fig. 10 Pottery, late period II (from Science Press, *Ch'ü Chia Ling, Chingshan* 1965: p. 62, Fig. 49).

B. It was in this period that a kiln was constructed. Although without any bronze association, the kiln was used in later periods as well (one cicada jade was found in the kiln). Also associated with this period are the many figurines of red, buff, and gray pottery. There are many unidentifiable forms among the figurines, but numerous types of wild birds and animals, turtles, and fish can be discerned. There are also realistically modelled dogs, ducks, geese, and sheep with curled horns; these are all presumed to have been domesticated by the inhabitants. The haziness surrounding the chronological interpretation of the kiln is most unfortunate, since it is from impressions in the kiln walls and carbonized fuels found inside that grasses of several varieties, including *tao* paddy-rice, have been identified.

C. Painted pottery was found in this deposit in addition to red, yellow, black, and grayware; of these, the gray predominated, and painted pottery was scarce. This period is archaeologically distinguished by the painted pottery spindle whorls. These are not numerous, but display a very careful technique of painting (Fig. 13*b*). The spindle whorls were made of fine buff-colored high-fired pottery; some of a glossy red were also found.

The pottery of Shih-chia-ho does not appear to have a chronologically significant variation; grayware is plentiful, but painted pottery is scarce, and in construction is unlike that found at Ch'ü-chia-ling. Broad bands or straight lines and angles are painted in black on red or buff pottery. *Pei* is most plentiful, *kuan* is scarce. Gray vessels often have spherical covers; ring-footed vessels often have very high (13 cm) pedestals that are perforated in random patterns. *Hu* also is made in the grayware. Black pottery includes round-based *kuan;* vessels in buff and red ware include wide-mouthed *pei,* cylindrically shaped pots, high ring-feet, and flat-based *kuan.* The pottery is frequently cord-marked.

Small *tsuo* chisels and winged points are made of stone; there are also tools of bone and teeth that have disintegrated beyond identification.

Ch'i-ch'un

In the Hankow area (lower Hanshui Valley and lake region) of the Ch'i-ch'un district, there are several important sites. Again representing localized farming cultures, these settlements indicate a depth and continuity of development which was independent of basic Chungyüan influence.

I-chia-shan (*KK* 1960, 5; 1956, 3:21–24), 2 km from the district capital of Ch'i-ch'un, can be considered in a preliminary fashion. It is surrounded on the northwest, west, and southeast by small hills or mounds. The river valley is interrupted by many such hillocks, some rising 4 or 5 m above sea level. Other small sites were discovered in the vicinity, all with assemblages reportedly similar to I-chia-shan. In a nearby town, a cemetery of 20 or more graves that may be related to the dwelling sites was discovered. The gravas contained jades and bronzes.

In 1956, nine test trenches were run at the site of I-chia-shan, exposing 13 dwelling pits and several soil strata.

Broken bricks and Ch'in tiles were found on the surface of much of the site (an area of about 6,500 sq. ft.). Excavations in the north, west, and eastern quadrants went down to sterile soil, while the southern section continued to an unknown depth. I-chia-shan does not represent a single occupation, but rather an early stage into which later burials were intruded. The present interpretation of stratigraphy is based on the published materials:

Upper level 0.64–0.8 m from surface. Ch'in tile fragments, fine redware, sandy redware and grayware, stone tools, and a few pieces of stamped pottery;

Lower level to 1.25 m from surface. This level appears to have two culturally determined periods:

- *a*) The upper portion of the level was noted to contain burnt red earth and limestone pebbles. The materials included sand-tempered black and red pottery, usually string marked but sometimes incised, grooved, or perforated. Shouldered stone tools occur in addition to bone.
- *b*) Materials excavated from the lower portion are essentially the same as above, but occur in gradually decreasing frequencies. In Trench 4, a sherd of black painted pottery was found, and in Trench 3, a fine clay-tempered black *tou* and a shouldered axe were discovered.

A round house pit which seems to be correlated with *b* above is described in the report: the burned red earth (floor?) contained unadorned fine redware, grayware, and a few bone

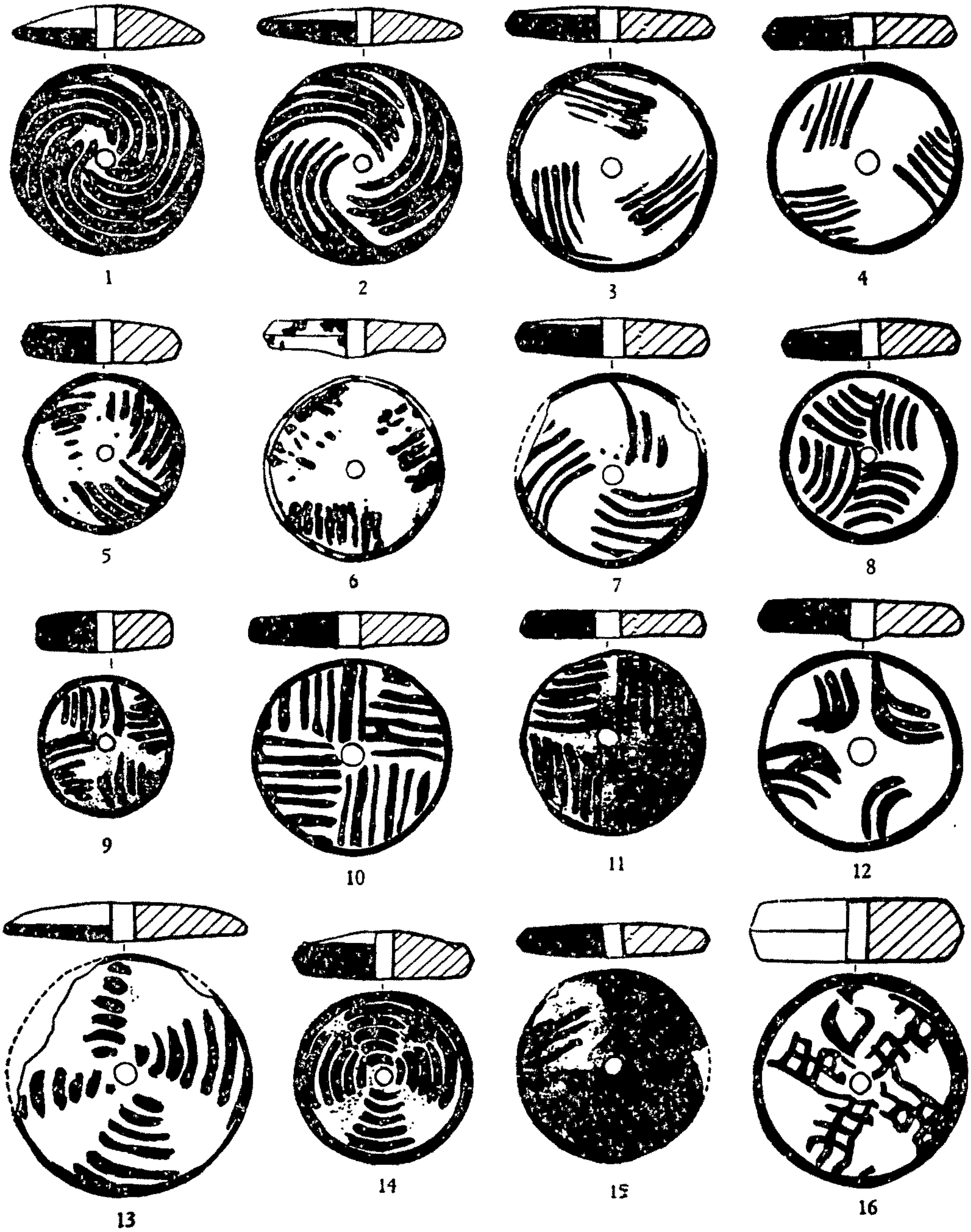

Fig. 11 Painted ceramic spindle whorls (from Science Press, *Ch'ü Chia Ling, Chingshan* 1965: p. 47, Fig. 37).

tools. There were animal bones and teeth, charcoal, stone tools, and some fine-tempered, gray pottery in refuse deposits.

Altogether, 231 stone tools were found in the area of the site; of these, 183 were excavated, and 48 were collected from the surface. The stone materials included slate, shale, nephrite, and "green-stone" (jadeite?). Axes, adzes, points, knives, chisels, hoe-spades, rings, and tubular-shaped implements were found; the so-called refined and primitive types obviously belong to the same culture period. The axes all had polished edges but were otherwise "crudely shaped." The hoes or spades were perforated. Chisels were small and very finely ground. The adzes were large tools made on pebbles. There were also ornaments of white and black polished stone. Unfortunately, the tools were not segregated according to stratigraphical position, but were presented as a total collection.

From three trenches alone, over 14,000 potsherds were collected. These were classified according to color of paste and size of temper. The coarse-tempered ware (red, black, and gray) constituted 90 percent of the total, the remaining 10 percent was fine-tempered pottery, which only occasionally had inclusions of fibre or crushed stone. In this group, there were some polished pieces. Cord-marking was the most common feature of ornamentation, but there were also basket patterns (these possibly may be check-stamped) and some with grooving on the surfaces. There were 23 pieces of geometric impressed pottery and 2 sherds of painted ware. *Ting, li*, and *kuei* tripods occur as well as *hu, kuan, pei* and *p'en* shapes. Covers and handles were found. Spindle whorls, net-sinkers, and bracelets were fashioned in pottery. There were human and bird representations modelled in fine redware. Lack of sufficient evidence makes it difficult to date the hard-geometric-stamped or the painted pottery. They may, in fact, have been imports.

Ting were the most common tripod in use; they were usually of red sand-tempered pottery, cord-marked, and incised on the feet. Only 14 pieces of *li* type were found; these are all small and are made of fine clay-tempered redware. There were 2 *kuei* also of this ware, and 5 grayware *tou* were wheelmade and grooved. *Hu* were also wheelmade of coarser grayware and grooved; *kuan* were of finer paste. Many of the ring-footed vessels were perforated. In general, cord-making appears on the coarser pottery. Several multi-footed *pan* are identical with those found at Shih-chia-ho. There was 1 incised tripod and many ring-footed vessels with grooved bases. Several examples of handles and lugs were found. Some of the *ting* forms have protuberances imitating those on bronze vessels.

The numerous netsinkers made of fine redware give evidence of great reliance on fishing. Rings and bracelets of grayware and 19 pottery discs were found, all with perforations and imprints on the surface.

A great quantity of animal bones and teeth were found at the site. These were mainly of dog and pig. Only 10 tools (awls and points) were made of bone. There were 11 bronze pieces, including 2 axes and several points found on the surface and in the disturbed fill of one trench. Several areas of burned red-clay were discovered. Several pits were opened, all containing charcoal and refuse.

Yunhsien and Chunhsien

In 1961, an extensive report was made of excavations undertaken in the districts of Yun and Chun in the upper Hanshui Valley. More than eighty sites were discovered, spanning neolithic, Spring and Autumn, Warring States, Han, and T'ang periods (*KK* 1961, 10:519–530).

In northwestern Hupei, the Hanshui Valley extends to the mountain region. The topography of the area is dominated by precipitous gorges, some with a sheer rise of 200 m. In the broad river valleys, the land often becomes basin-like and is largely cultivated.

Archaeological sites are found on the slopes rising from both banks of the river. They represent rather large settlements of rice farmers. The sites show persisting cultural continuity which seems to be largely independent of Chungyüan civilizations. None show strong Shang or early Chou influences. They are superseded by the occupations and burials of Warring States, Han, and Ch'in times. The intensely local nature of the culture is emphasized by the extensive urn burials and the general absence of many typological features considered typical of Chungyüan neolithic ceramics. The excavators have made an attempt at isolating cultural "components" which are given pottery-type names and then placed on a time-scale. Thus, the sequence Yangshao–Ch'ü-chia-ling–Lungshan is put forward and the material is arranged accordingly.

The site of *Ta-szu* is in Yunhsien, 10 km west of the district city and on the north bank of the Hanshui. It is in a triangular-shaped valley. The occupation area of the site spreads over about 5,000 sq. m, and there is a cultural accumulation of about 2 m in depth. A total area of 100 sq. m was excavated. Three test trenches were dug in obviously disturbed agricultural areas where "Yangshao" sherds appeared in the upper levels. Warring States and Han burials also occurred.

The "Yangshao" component has an accumulation of 0.8 m in depth that merges with Ch'ü-chia-ling. The remains are said to be similar to Pan-p'o and Miao-ti-kuo. There were 4 round ash-pits found, all under 1 m in diameter. These were filled with sherds, river pebbles, and shell remains of river molluscs. There were 7 graves discovered in which there were solitary burials, but 1 grave contained 8 skeletons.

The pottery was mostly unrestorable, but some shapes could be determined: *ting, wen, kuan,* tapered *p'ing,* round and flat-based bowls, *pei,* and high-necked jars with covers. The *ting* and the painted red ware with black or red decorations, or both, were all similar to pottery found in Shensi at the site of Miao-ti-kuo. Only a few of these were slipped in white before painting. The fine-tempered redware *kuan* had the high necks that are similarly found in the "Yangshao" of Ch'ü-chia-t'ai and Ching-lung-chuan (see below).

Stone adzes, axes, chisels, points, and net-sinkers were found. Knives, which were rare, were either chipped or polished. Bone was made into needles, awls, and points. Again, there are equivalent artifacts among the Pan-p'o (Shensi) materials.

The "Ch'ü-chia-ling" component is a deposit of 0.5 m that merges into the "Lungshan." It is similar to Ch'ü-chia-ling of Ching-lung-chuan. Four pits, each less than 2 m wide, were found with accumulations of pottery, bone, and shell.

The most important pottery shapes included *ting, kuan, tou pen,* and high-footed cups; there was also 1 small pottery *pei* of black eggshell paste and 1 *yu.*

The site Ch'ü-chia-t'ai is situated between the southern bank of the Hanshui and the north bank of the Tseng River, 1 km south of Chunhsien City. The site is ca. 10,000 sq. m in area; the cultural deposit does not exceed 2.5 m in depth. In 1958 and in 1960, a total of 1,000 sq. m was excavated, revealing two components, designated by the authors of the report as "Yangshao" and Spring and Autumn.

The earlier deposit is 1–1.5 m thick. Ceramic remains included unadorned and polished pottery, both sand and clay-tempered redware. Painted pottery was absent; shapes were not varied. The technique of manufacture was rather refined and controlled In this respect, it is similar to the pottery found at the sites of Ching-lung-chʻuan and Luan-shih-tʻan, but it also shares some elements with Ta-szu. There were 5 dwellings reported, including single-roomed rectangular (7.5×5 m) houses and two-roomed houses. Walls of red burned earth and clay were rubbed smooth inside. This site possibly may have been abandoned because of fire. Ash pits with scarcely any pottery were excavated. Burials included 3 adult interments and 1 mortuary urn containing a child's skeleton and deer antlers.

Conglomerate stone was chipped and roughly polished to form axes (rectangular with oval cross sections), adzes, chisels, points, and spindle whorls. Some of these tools were partially pecked, but only the cutting edges were ground. A few stepped flat axes and perforated celts occurred: These have allover polish and fine workmanship.

Coarse sand-tempered and clay-tempered redware predominated in the pottery collection. There were also analagous types in grayware, but black pottery was scarce. All of the ceramics were handmade, and a very few had basket- or string-markings. Appliqué-rope-banding appeared, although rarely. Most surfaces were plain, some simply burnished. A few *kuan* were slipped in red. Covers and handles were found. The *ting* were usually made of coarse red paste, the *kuan* of gray. There were many clay-tempered high-necked *kuan.*

The site of *Ching-lung-chʻuan* is about 3 km east of Yunhsien Capital City and on the northern bank of the Hanshui. It is located on a slope of the southern foothills of the Yuchien mountains. It is a large site, conforming to the shape of the river plain and on the surface measures ca. 40,000 sq. m. The site had a cultural depth of between 3.5—5.5 m. It was an unusually rich site of pre-bronze remains. The western section of the site was occupied during spring and autumn periods, and there were also some Warring States burials. The cultural relationships suggested by the excavators are in part stratigraphic: Yangshao–Chʻü-chia-ling–Lungshan. Excavations of over 1,000 sq. m in the central and eastern sections included house remains, ash-pits, and 40 burials. A kiln was found. There were large quantities of pottery, stone, and bone artifacts. The terminology of the report will be followed in the following description:

Yangshao Cultural Component.

Yangshao cultural component is considered 1.5 m thickness of accumulation underlying the "Chʻu-chia-ling" component. These remains were basically the same as Chʻü-chia-tʻai but showed certain unusual features of construction and a scarcity of pottery types (see Fig. 12).

Of 5 houses, 3 were found in good condition. These were round in shape and of earthen construction. There was 1 house about 2.4 m wide with a trench or drain about 0.34 m wide and 0.32 m deep surrounding it. Boulders found in this trench may have been the remains of a foundation. Lumps of burnt clay and twigs suggest wattle and daub construction. In another trench, 3 house-posts were traced, and indications of a doorway were found.

There were 4 mortuary urns placed near the dwelling places. These were probably child burials, and all were accompanied by grave goods.

Most of the stone tools were both chipped and polished, and relatively few showed allover polishing. They included axes, adzes, chisels, knives, and points. Rectangular axes were fashioned out of conglomerates. There were also stepped and perforated axes, hammerstones, and scrapers. Adzes and chisels were generally polished. Perforated knives appeared only rarely. Only a few points and awls of bone were found.

Vessel shapes included among others deep-bowled *ting,* deep *kuan,* small-mouthed *kuan* with high-necks. A few of these have knob-like protuberances around the shoulder. There are painted designs (post-fired) of simple circles, parallel lines, and hatching. Handles, lugs, and covers occurred. Pottery and stone bracelets and rings were plentiful.

Animal bones in this component included dog, pig, and deer; of these, pig was most numerous.

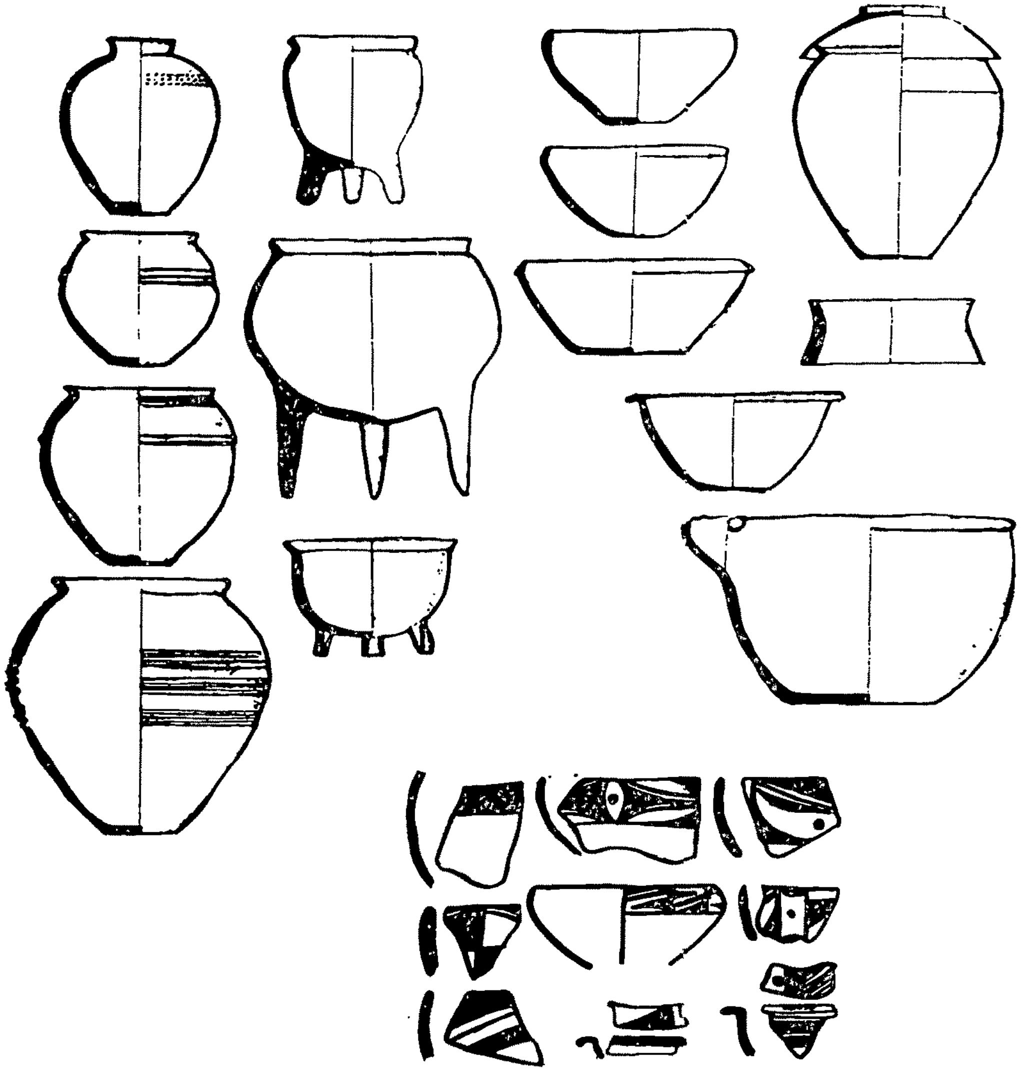

Fig. 12 "Yangshao" style pottery from the sites of Ta-szu, Ch'ü-chia-t'ai and Ching-lung-chan (from *KK* 1961, 10).

Ch'ü-chia-ling Cultural Component

The Ch'ü-chia-ling cultural component is about 2 m of cultural deposit underlying the component called "Lungshan." Coarse, unadorned pottery and burnished gray-black ware were most important and included ring-footed vessels with angular walls and some eggshell painted pottery.

There were 4 house-sites found. These were of two types, the first being large rectangular-shaped houses of two rooms each. Of this type, 1 measured 14×5.6 m and faced the northeast. The walls rise from ground level and were constructed of burned clay. Impressions of many stalks and kernels of *tao* rice were discovered in the clays. The inner surface of the walls were plastered. Smaller houses were found that had only one room each. There were also several pits, none more than 4 m across, containing stone, pottery, bone tools, and animal refuse. Reportedly, 1 kiln was found, but the contents were not described.

There were 6 burials excavated. Near the house area, 2 adult skeletons were interred in extended positions. The skeletal remains in 4 mortuary urns were of children. All had grave goods accompanying them.

Many stone tools were collected, but very few tools of bone or pottery were found. Stone working techniques were the same as those seen in the "Yangshao" culture level, but there was an increase in the number of polished tools that had been pecked and finished over the entire surface. The categories of Chʻü-chia-ling tools were the same as "Yangshao" categories, although there were some changes in style. Axes were thin, flat, rectangular, or oval in section. One stepped axe, polished and perforated, was found. Adzes and chisels were numerous. The report states (*KK* 1961, 10:524) but does not illustrate that many chipped, waisted hoes were present as well as some shouldered hoes. All of these show use-polish at the cutting edge. There were a few rectangular polished knives with one or two perforations, and quantities of stone and bone points.

Gray pottery was dominant in the ceramic materials and included both coarse sand-tempered and fine-tempered wares. Redware of the same types were important. There was very little black pottery. Pottery was made by hand; surfaces were generally plain although sometimes they were burnished. Perforated, grooved, and incised decorations do occur, but only a few can be called "basket-marked." Painted decoration of geometric designs in red and black, or only black, were found on *kuan, pei* interiors, and *yu.*

In the eggshell *pei,* a purple color was added. Shapes included *ting, kuan, pen, tou, yu, hu* and *pei* covers and handles. *Li* were not present, nor *kuei* or *chia. Ting*-feet made up the largest part of the collection. There were several types of *tou,* the most numerous being the high-footed style; these were generally perforated (See Fig. 13*c*–*e*).

"Lungshan" Cultural Component

The "Lungshan" cultural component is the 1.5 m accumulation lying above the Chʻü-chia-ling materials. Basket-impressed pottery was most prevalent. There was some thin blackware, but never a *li* tripod. There were *ting, chia, kuei,* and a few painted pots. In these aspects the site was similar to Ta-szu (above). The basket-marked pottery was identical with that of the Honan Lungshan; however, there was sufficient material of "local color" to clearly differentiate the total collection from the Honan-Shensi Lungshan.

Among the 30 burials associated with this component, 24 were adult interments and 6 were urn-burials of children. Only 9 of the shallow rectangular graves had grave goods. These included pottery *kuan, pei,* and pen; stone points and rings; jade tubes; pottery spindle whorls; and pig bones. Two graves were rather different. The burial numbered 27 contained a human skeleton with 14 pig mandibles (?) and pottery *kuan* and *pei.* These latter were punctured, presumably for "spirit release." In number 31, the corpse had been buried with a heap of pig bones, and wore a stone bracelet on the right arm.

Tools were mostly of pecked and ground stone, many showing allover polish. Chipped stone tools gradually diminished in frequency when compared to the earlier occupation. In addition to axes, adzes, chisels, knives, points, and spindle whorls, there were disc-shaped hammerstones and shouldered hoes. There were many perforated ground-stone knives of rectangular shape. Pottery spindle whorls were frequent, some being painted and engraved in the fashion of Shih-chia-ho and Ch'ü-chia-ling.

Grayware, both coarse and fine, dominated the pottery collection; however, there was also related redware. Black pottery was rare. All pottery was handmade; and a large proportion was basket-marked, check-stamped, grooved, string-marked, perforated, and incised, although plain and burnished surfaces did occur. Painted decorations appeared but in small quantity. It was restricted in *kuan, kuei, pei,* and spindle whorls. Some purple slip was used. Vessel shapes included *ting, chia, kuei, tseng, pen, kuan, yu, pei, tou, pan.* Several had covers and handles. The *li* was never present, and the *ting* was frequent; *chia* were rather scarce and usually had appliqué-rope-banding on the shoulders in addition to surface basket-marking. In general, the pottery at this time showed great variation in shape and decoration.

Jade ornaments, stone bracelets, and rings were also found. Animal remains consisted mostly of pig bones, with some dog and deer, as well as sheep.

CONCLUSIONS

The culture history of Hanshui Valley involves many difficult problems. It is well recognized as an area of culture blend and creativity: having received primary neolithic influences from the Chungyüan, the area was prepared for agricultural innovations. In a naturally favored region, experimentation with new ideas and materials was both feasible and productive. It may be suggested that the sites discussed here actually manifest two major components: the earlier was neolithic, the later, historic. The so-called Yangshao culture of the upper Hanshui Valley does seem to be comparable with the Shensi Pan-p'o-Miao-ti-kuo sequence. It therefore represents a reasonable extension southward along a major communications corridor. However, the "Lungshan" component is probably entirely historic, showing late Shang-Chou stylistic affinities. The intermediary Ch'ü-chia-ling is basically historic in time, although there may be continuity with late persisting local neolithic cultures.

The fact that the painted Ch'ü-chia-ling pottery is all wheel-produced, the appearance of geometric stamped decoration at the type site, at I-chia-shan and Yang-chia-wan, and the presence of bronze implements or apparent imitation of bronze vessels all argue for late dating, at least post-1000 B.C. At the same time, the absence of typical Honan-Shensi Lungshan pottery emphasizes the independent nature of this regional development. When Lungshan influences do appear, they are of the late eastern, or bronze-age type (see also Tung 1960:63–64).

In this respect, the sequence of development at the Ching-lung-ch'uan site is perhaps most typical. The earliest levels reveal a well-developed small village complex with an all-purpose stone tool kit adapted to simple farming (millet) and hunting; the dog and pig are domesticated. This culture is derived from the Chungyüan (Shensi) and persists for a long time as a moderately successful and suitable adaptation to the riverine valley conditions. In the first millennium B.C., a new way of life emerges, based on rice agriculture.

A parenthetical remark on the origin of rice is required. The positive identification of Ch'ü-chia-ling *tao* rice as *Oryza Sativa indica* (*KK* 1951, 4:31–34) causes us to pause in evaluating prehistoric Sino-Indian contacts. In India, the earliest appearance of domesticated

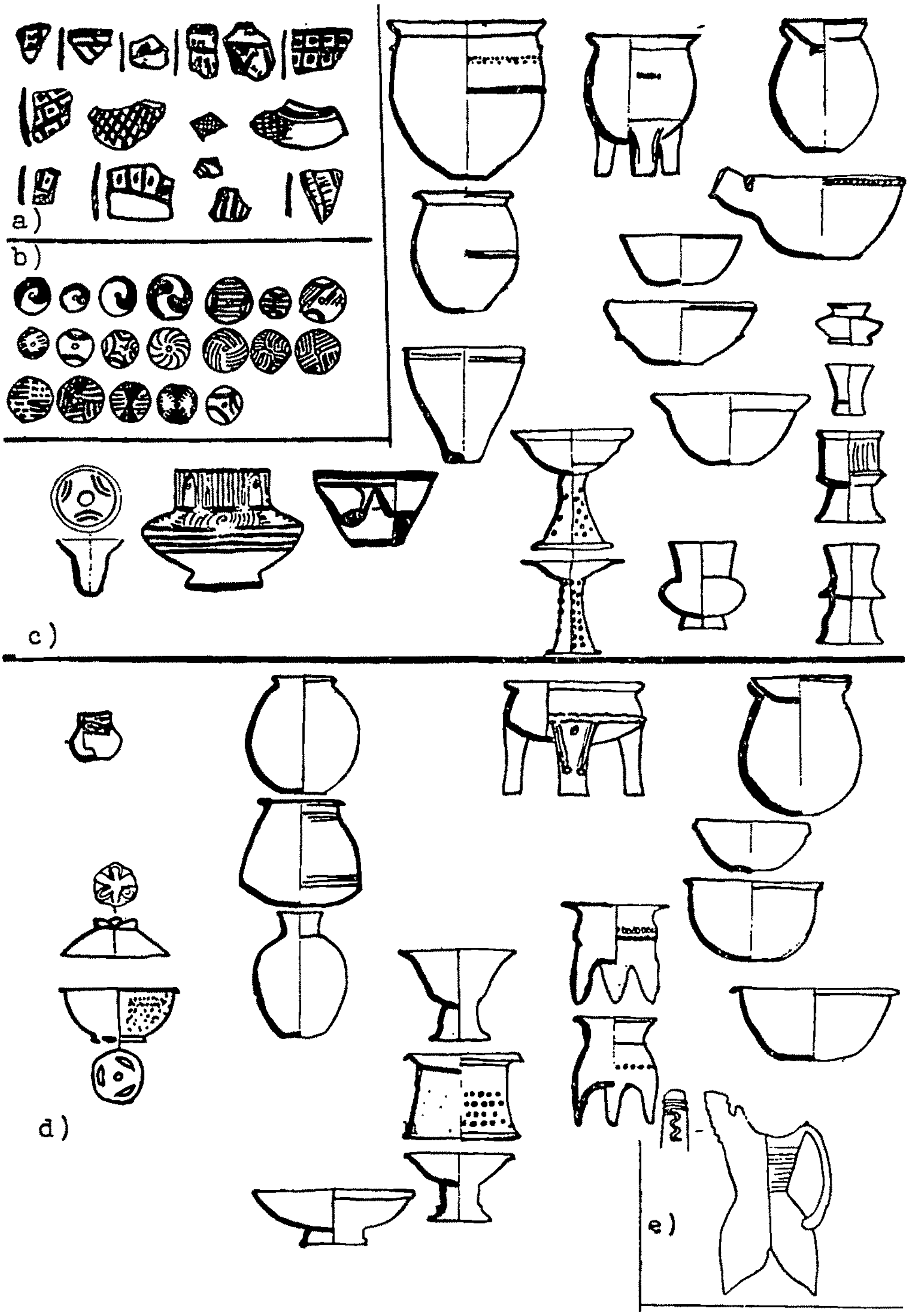

Fig 13 *a*. Painted pottery from Ch'ü-chia-ling (from *WW* 1955, 4).
b. Painted ceramic spindle whorls from Shih-chia-ho (from *KKTH* 1956, 3).
c–e. Pottery from Ching-lung-chuan (middle period) (from *KK* 1961, 10).

rice is now found at Navdatoli, in Malwa, and may date ca. 2000 B.C. This may, in fact, be earlier than its first appearance in China, since its association with "Lungshan" blurs the actual dating. Perhaps it is not too speculative to suggest an early interchange between rice agriculturalists of eastern India and the inhabitants of Szechwan's Yangtze Valley, from whence new ideas filtered along the river course to the Hanshui region (see, for comparison, Chang 1963, Dani 1960, Sankalia 1962, and Treistman 1968). Lacking critical materials from mainland Southeast Asia, this would appear to be the only possible derivation. Once established in the Hanshui-middle Yangtze region, intensive wet-rice cultivation spreads very rapidly onto the lower Yangtze delta plain and along the coast of southeast China. The mound-dwelling terrace-builders subsumed under the rubric "hard-geometric stamped pottery culture" are likely candidates for historically known Yueh peoples who brought this new way of life to fruition. They may even have been responsible for its transmission to Japan (Yayoi) and southeastern Asian centers.

An updated chronology for this Ching-lung-ch'uan sequence immediately opens the possibility of cultural identification in the Chungyüan histories. While traditional records simply refer to the populations of this region as Miao-man (barbarian tribes) they may in fact represent the cultural crystalization only somewhat later to be known as the kingdom of Ch'u (740–330 B.C.). Early Shang oracle sentences utilize the *tao*-rice character, although there is no archaeological evidence for rice cultivation in the Chungyüan during this period. However, if relations with the Ch'ü-chia-ling culture are now proven, rice may already have been an important "commodity." The relative lack of metallurgical knowledge need not disprove contemporaneity. The development of bronze technology may never have been utilized for agricultural exploitation, but may have remained peculiarly ritualistic. Its distributions seem to have had a hierarchical restriction. In fact, the Ch'u, intensive rice cultivators, are possibly among the first to apply iron technology effectively to agriculture (*KKHP* 1960, 1:73–87). Prior to this, wooden tools probably sufficed. This was certainly the case in the Yayoi cultures of Japan, which parallel the Hupei development to a surprising degree. Lacking quantitative data, it can only be suggested that the frequently reported waisted or perforated axe-hoe is the favored stone implement of the local rice cultivator, and the typical sickle, or reaping knife (perforated rectangular or semi-lunar shape) of the Chungyüan is scarce.

Lacking a full Bronze Age in the urban-civilized sense, Ch'u culture may have achieved its remarkable florescence during the first millennium B.C. on the basis of an iron technology. It even may be that iron was a necessary innovation before rice-agriculturists could successfully exploit the Yangtze valley region (see also Hsia 1960:2–3). When the Ch'u kingdom first appears in the south (as early as Spring and Autumn period) at Hunan Ch'ang-sha, it maintained an intensity of unique development which was outstanding. Not only did it have a pictorial script which is largely unrelated to the script developed by Chungyüan civilization, but unusual styles of decoration demonstrate continuity with earlier traditions. An example of this is the exuberantly ornamented pottery, painted after firing (*KKHP* 1959, 1:41–60).

If, by 681 B.C., the Ch'u expansion had gained such momentum as to call into being a "league" of resisting states from the Chungyüan, it is fitting to look backward in time for clues to the origins of this culture. While positive identification is not yet possible, Ch'ü-chia-ling does make a good ethno-historical candidate. Once conceptually separated from major Chungyüan derivation, it remains the task of archaeologists to assess Ch'ü-chia-ling in relationship to other cultural manifestations in the south: Szechwan-Yunnan and the southeastern coastal belt.

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Late Neolithic Site in the Extreme Northwest of the New Territories, Hong Kong

Received 29 July 1966

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THE SITE

STONE implements and pottery indicative of Late Neolithic settlement are known to have been found in several spots on the west coast of the New Territories facing Deep Bay (Davis 1965). All the artifact finds have been confined to the surface or near surface. No excavation has been undertaken. The site described here is the northernmost of a group of sites (see Fig. 1). Its location has not been reported and studied before. It differs from other sites along the west coast of the New Territories in that finds are not restricted to the surface. However, no proper excavation has been done. The artifacts were turned out by haphazard and rapid excavation by laborers digging clay for a nearby brick works (Fig. 2). Clay was consumed in the brick works at such a rapid rate that within two months of the discovery of the digging by M.K. Woo, of the Hong Kong University Archaeology Team, and before an organized visit by the whole team could be arranged, the entire site had been removed. During the course of rapid removal, however, members of the team had managed to make several site observations, measurements, and collections. Besides gathering in a large amount of artifacts of the type commonly found in Hong Kong, they also observed a layer of more frequent finds, especially of pottery and chipped stones, lying 0.6 to 0.9 m below the surface. At such depth, artifacts were beyond the reach of ploughing by the present means of cultivation, although the broken nature of the pottery indicated that the pieces had been disturbed before. This observation could encourage further investigators to excavate nearby sites where only surface finds have been noticed so far.

The site was found about 1,000 yds. northeast of the Sha Kong (Lau Fau Shan 流浮山) Police Station [measured along the Deep Bay Road]. Although the artifacts suggest a settlement similar to sites reported by Rev. D.J. Finn (1958) and Davis and Tregear (1960), the detail relief of this site is distinctive in that it is not on raised beaches. It occupies the lower

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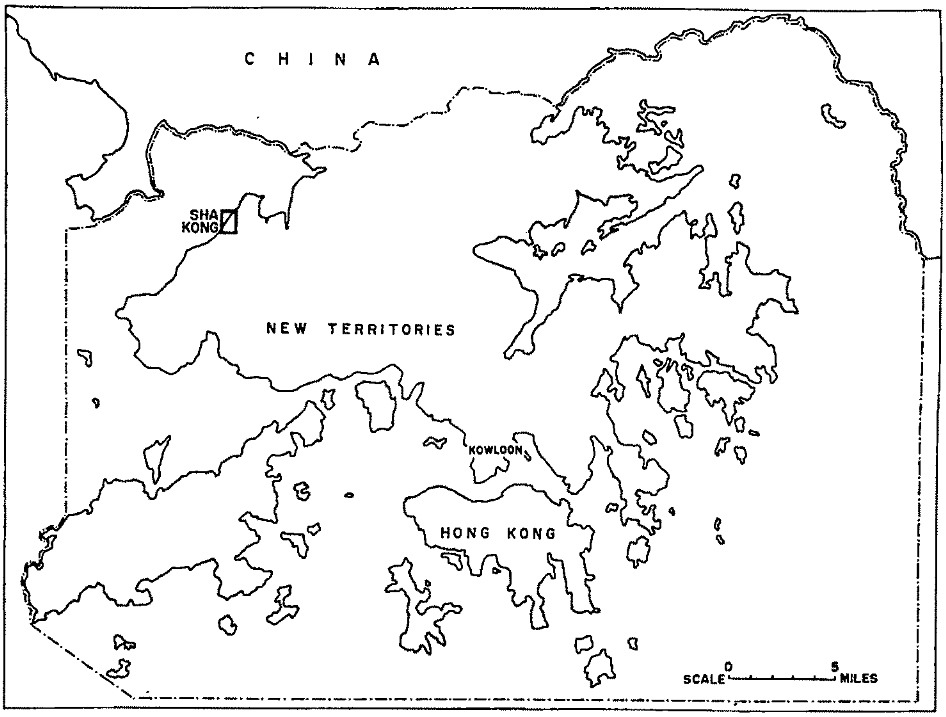

Fig. 1 Location map showing Sha Kong in the New Territories, Hong Kong.

slope of a round-topped hill that rises to just over 30 m. Like most other sites, it once bordered on the seashore, but it is now raised 27 ft. above sea level. It sits on the top side of a cliff probably cut by waves during a pause in the uplift. Further uplift raised the cliff high above the present sea level.

The bedrock of the site is schistose and is highly kaolinized. On top of this is a thick layer of mottled detrital material that is rich in clay. A shallow basin was formed on this mottled layer into which slope wash was deposited. At least five different bands of angular quartz sand were embedded in clay. There is a change of color from the red of the slope wash deposits to the brown of the culture layer that is rich in chipped stones (quartz), polished stones, and potsherds. Recent ploughing has produced a hard pan near the surface. The site is part of a hill slope that has been farmed for many years. Wide terraces have been cut out of the gentle slope. The brick works was set up on the shore in about 1950 to process the rich deposits of clay in the slope wash. The working for clay extended first southeast and, more recently, southwest, in which direction the present site was revealed (Plate I).

THE FINDS

The layout of the artifacts could not be properly recorded, since excavation was not under the control of the archaeology team. The finds seemed to be scattered over the site with no definite arrangement, except for the greater concentration at depth. All potsherds were found in broken pieces, but a sufficient number of them have been recovered to allow useful reconstructions that indicate the original shapes and sizes of the pots. Stone artifacts are little damaged, and they give clear clues to the original forms.

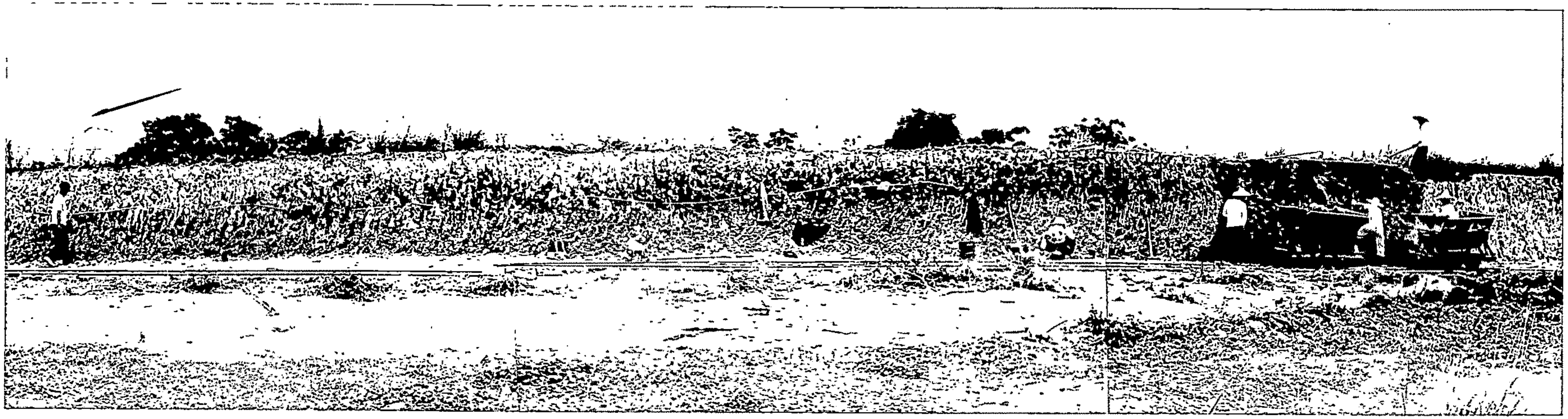

Plate I Section exposed by digging for clay. White tape marks the layer of more frequent finds.

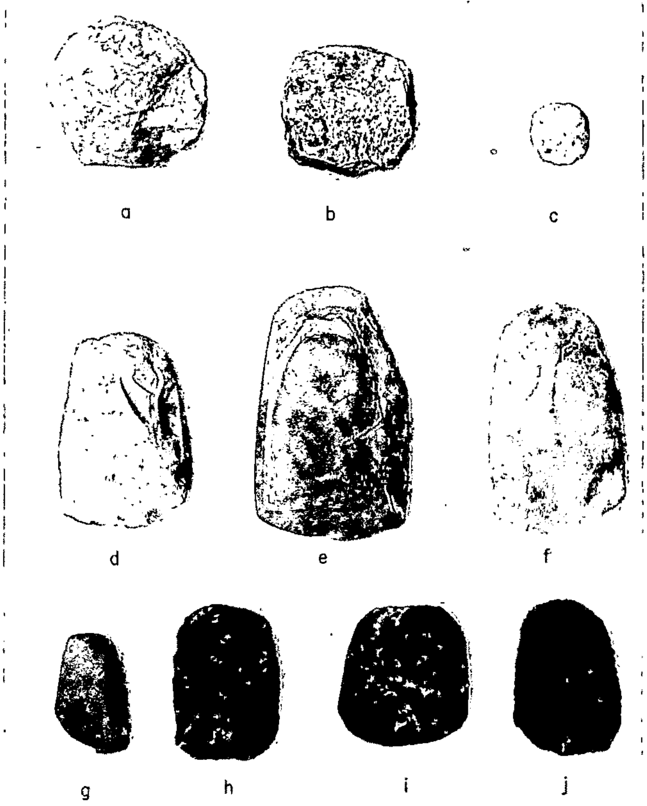

Plate II*a* Stone artifacts: a-c, quartz disc; d-j, stone adzes (see Fig. 3).

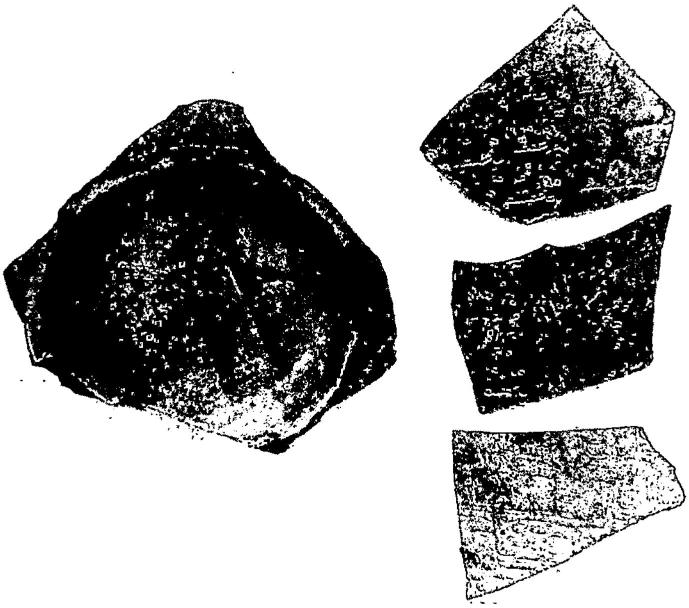

Plate II*b* Potsherds to show the double-F and the net patterns and potter's mark (see Fig. 4).

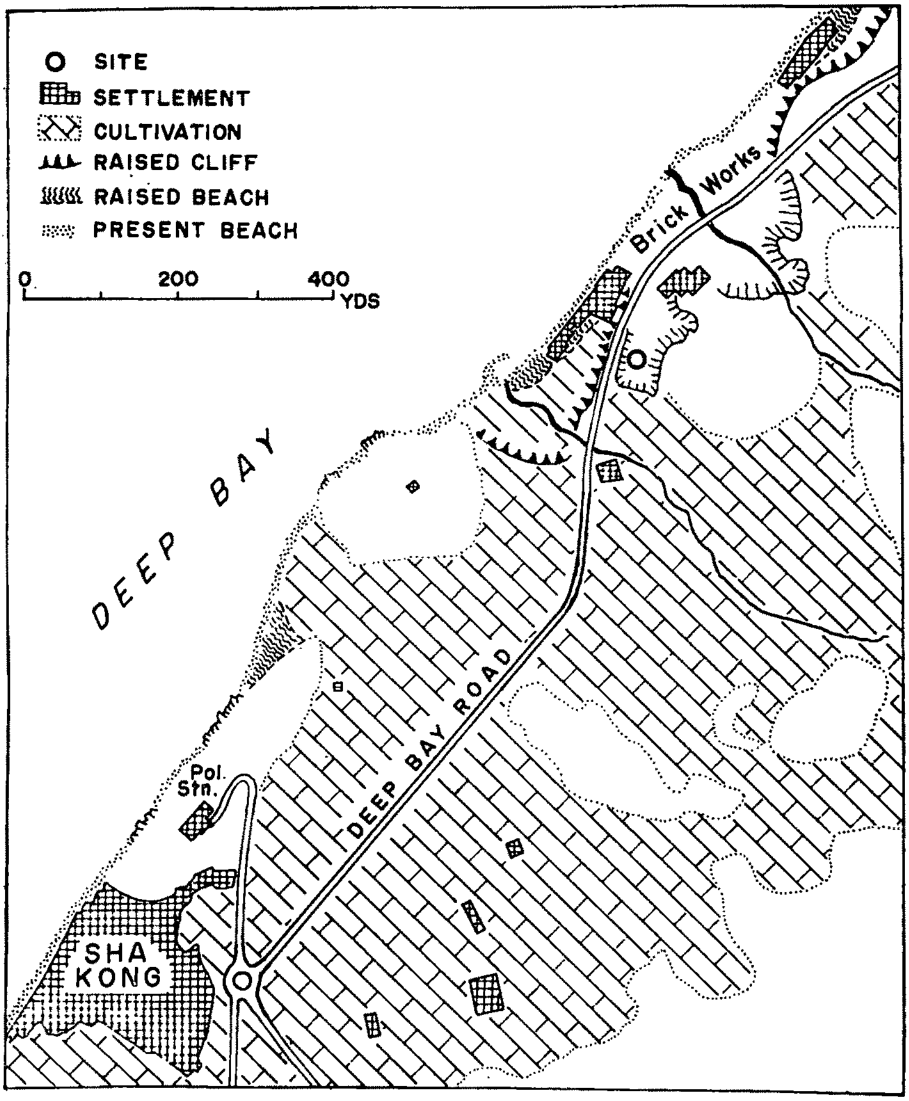

Fig. 2 Map showing surface features around the site.

Stone Artifacts

These are similar to those often found in this part of China, namely, chipped discs, polishing stones, hammer stones, and unshouldered lentoid adzes (see Plate II*a* and Fig. 3). Chipped discs are of quartz, and their use is not clear. No polishing has been applied to any of the discs or to their fragments. The polishing stones are of quartzite and show smooth, shallow, but wide depressions. The curvature of these depressions fits so closely in the convex surface of the lentoid adzes that it suggests the possible use of these two in shaping each other. The more resistant and gritty quartzite was a well-chosen material for shaping the adzes that are mainly of shale. Both quartz and quartzite occur in the local area, but shale does not. It was probably imported.

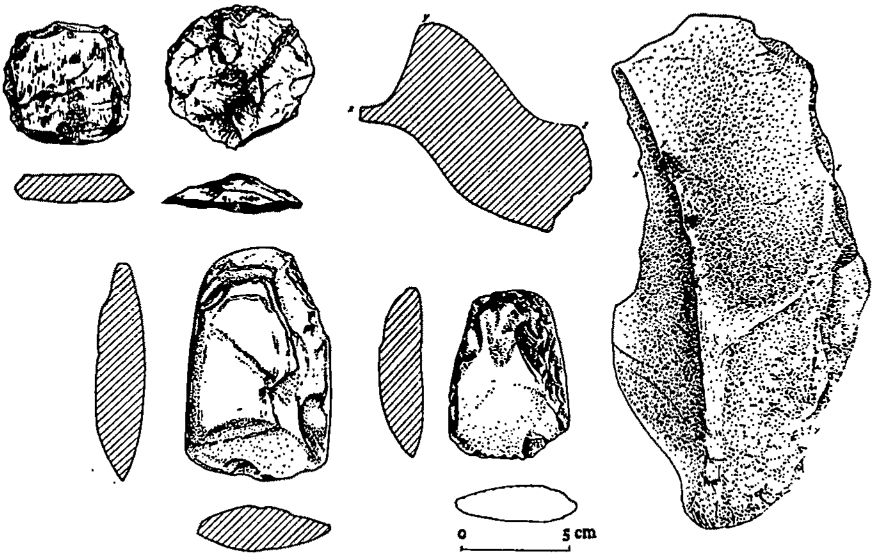

Fig. 3 Stone artifacts showing sections: quartz disc, adzes, and polishing stone.

Pottery

Both hard and soft pottery were found in quantities, but the soft pottery shows little pattern or shape, partly because of its long burial in well-watered clay and partly because of the very rough handling by the diggers, who had regard only for the clay. On the hard pottery, only three impressed patterns are found: the net pattern, the many-grooved rings with stich-prick, and the double-F (Fig. 4). Combinations of the net pattern and the double-F are common (Fig. 5). One of the bases of broken pots bears a special imprint made by parallel scratches (Plate II*b*). Its pattern resembles the potter's marks described by Father Finn (1958). The absence of other patterns that appear in most other neolithic sites of Hong Kong might be explained by the fact that not all the artifacts turned out in this site were recoverable.

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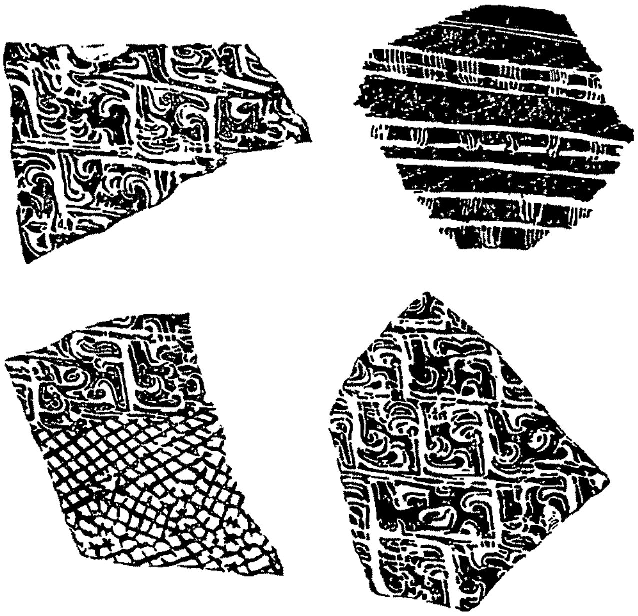

Fig. 4 Rubbings of the three impressed patterns on hard pottery.

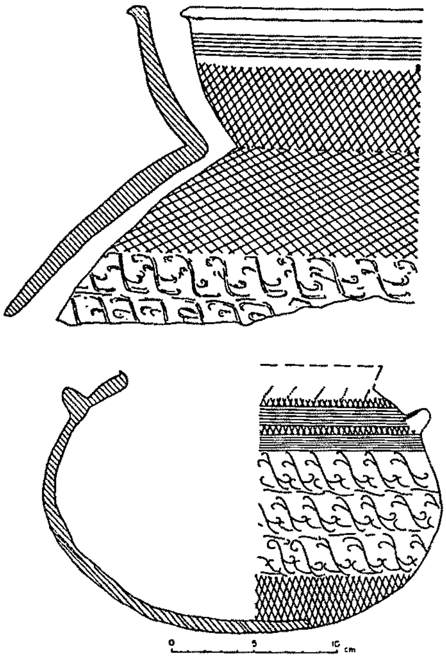

Fig. 5 Reconstructions of pots showing combinations of patterns: double-F, many-grooved rings, stich-prick, and net.

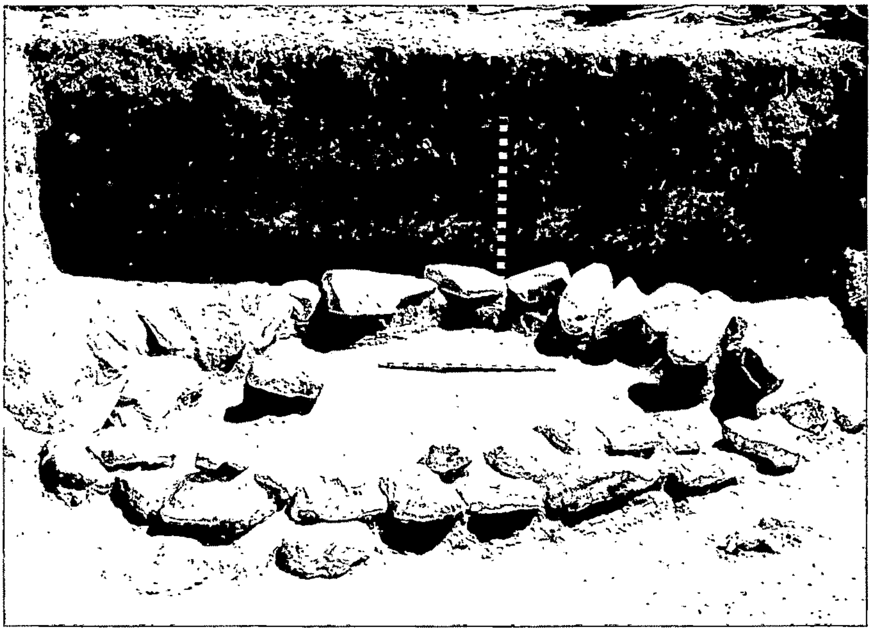

Plate I*a* Circle of stones of a complete burial at Timurgarha.

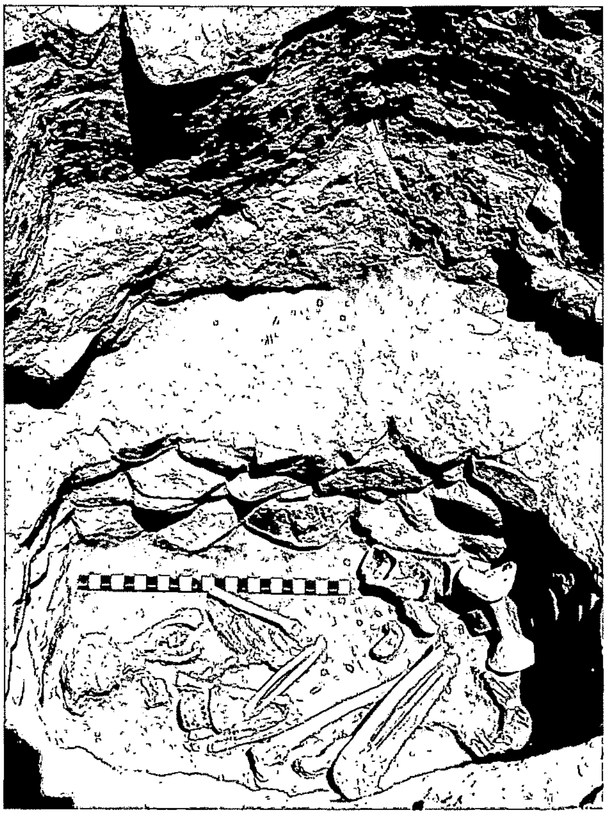

Plate I*b* Grave pit of a complete burial at Timurgarha.

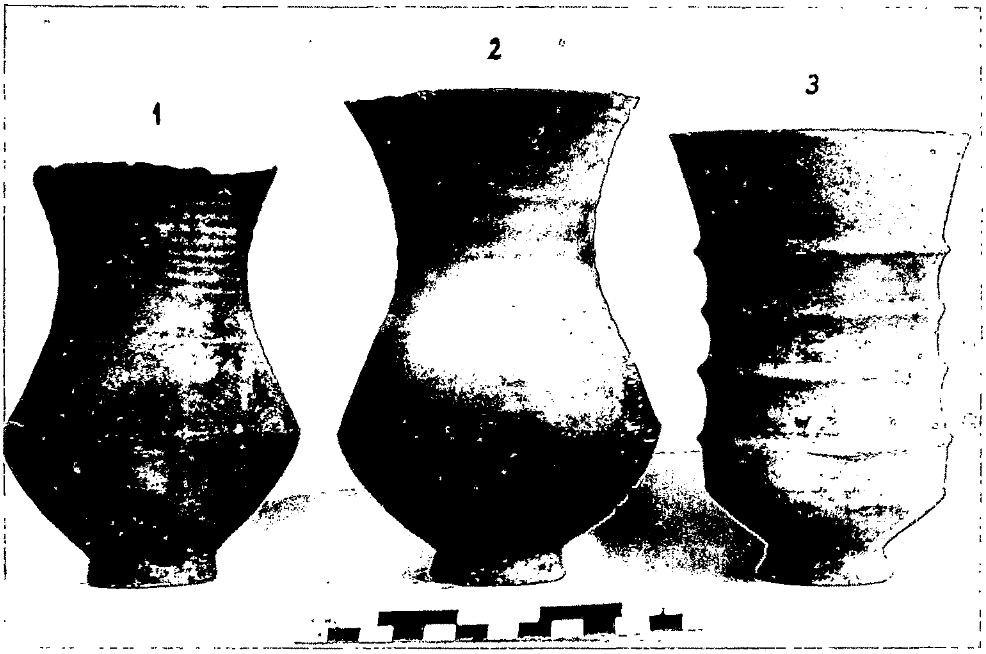

Plate II*a* Carinated tall drinking vases, Period I, Timurgarha.

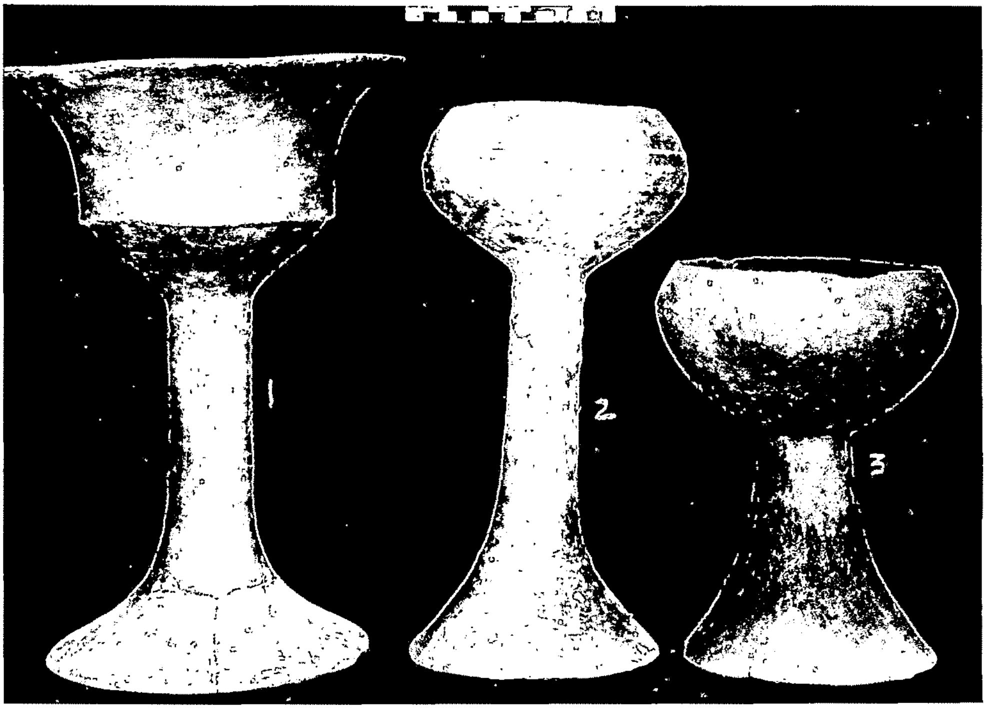

Plate II*b* Offering stands from Timurgarha:
(1) Grave 2 of 1964, Period I;
(2) Grave 2B of 1964, Period I:
(3) Grave 101 of 1965, Period II.

Gandhara Grave Complex in West Pakistan

Received 15 August 1966

AHMAD HASAN DANI*

A PRELIMINARY report on the Gandhara grave complex in West Pakistan was published in *AP* IX (Dani and Durrani 1966). We pointed out that these graves are widespread throughout the Gandhara region, from Bajaur to the Indus. The nomenclature "Gandhara grave complex" does not imply that the graves are only in Gandhara, but simply that in the present state of our exploration, we know the graves are spread throughout this region. With the widening of our exploration, we are likely to find them in the areas east of the Indus River.

With a full season's excavation in 1965 at Timurgarha in Dir State by the University of Peshawar, aided by the Department of Archaeology, Government of Pakistan, and with even longer excavations by the Italians in the neighborhood of Mingora in Swat State, the significance of these graves is becoming clearer. While we are still awaiting the results of radiocarbon tests and the report of a physical anthropologist on the skeletons, we are nevertheless in a position to unfold the picture in a better way than we did last year. The materials fall into three cultural, and possibly chronological, periods.

PERIOD I

In the first period, attested at Timurgarha and Swat, we find inflexed burials recovered from deep pits, the lowest stage of which is lined with stone masonry. Along with the complete skeletons, we have recovered pots of grayware and redware (generally plain), terracotta beads, hairpins, borers, and what may be a barbed harpoon.

In Timurgarha, these graves are noticed hardly 1 ft. below the present level of the fields. In excavation, after removing the top soil, we discover a circle of stones that marks the upper earth filling of the grave (Plate I*a*). The fill continues down 2 to 3 ft. After removing the fill, we reach the top of the grave pit which invariably is covered by rubble stones. When these stones are removed, we come to the rectangular grave pit lined with dry-rubble stone masonry. At the bottom of the pit the skelton is placed, generally southwest to northeast, lying on one side with legs inflexed, head turned to one side, and hands together (Plate I*b*). Pots are placed on the sides of the skeleton. The female skeletons generally have hairpins and beads.

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The pottery forms are most interesting (see Fig. 1). They fall into two broad divisions: grayware and redware.

Grayware

In grayware, we find only drinking vessels of three main forms. They are all turned on a wheel and have a fine texture. In color, they vary from brown-gray to dark gray or black. Generally, they are:

1. Narrow-waisted, tall drinking vases with slightly flaring, simple rims. All of them have flat-disc bases. They are further distinguishable into four subvarieties:
    - *a*) marked carination below the waist and a series of cordons at the neck (Plate II*a*);
    - *b*) carination just above the base, cordons, straight sides for some portion of the lower body, and flaring upper portions (Fig. 2*d*);
    - *c*) forms similar to *a*, but with cordons below the waist in place of carination;
    - *d*) grooves in place of carination and no cordons; they are comparatively smaller in size than *a, b, c;*
2. Middle-sized drinking goblets on flat-disc bases with broad bodies and comparatively narrow, straight mouths. They have no cordons on their bodies;
3. Drinking cups with outturned lips, either
    - *a*) sagger-based or
    - *b*) flat-based with chamfered ends; one flat-based cup with chamfered ends was also found in redware.

Redware

Redware falls into two main forms with the additional form mentioned above under grayware (3*b*):

1. Offering stands made of well-levigated, well-fired clay. These pots have red slip on their bodies. They fall into the following subvarieties:
    - *a*) solid stemmed and straight-sided bowls with outturned rims (Plate II*b*, 1);
    - *b*) solid-stemmed and incurved bowls; one bowl shows cordons on the body, and the other has incised triangles just below the incurved rim;
    - *c*) hollow stems and incurved bowls; in three varieties (*a, b, c*), the bowl was made along with the stem;
    - *d*) incurved bowls on tall stands, made separately, with broad bases; some have grooves on them;
2. Cooking vessels (Fig. 1*g*) of different sizes: globular jars on small, flat-disc bases that have sharply turned everted rims and rough, gritty textures; some have lids with either rounded or rectangular knobs in the middle—all are handmade; this is the most common pottery form throughout all the periods noted in the grave complex.

Small Finds

The beads are all of terracotta and are biconical in shape. The hairpins are of bronze and ivory. They are of two varieties: the first has a flat top, and the second has a conical head. The ivory specimen is conical. There are also two specimens of borers in ivory. The harpoon had barbs that are now broken.

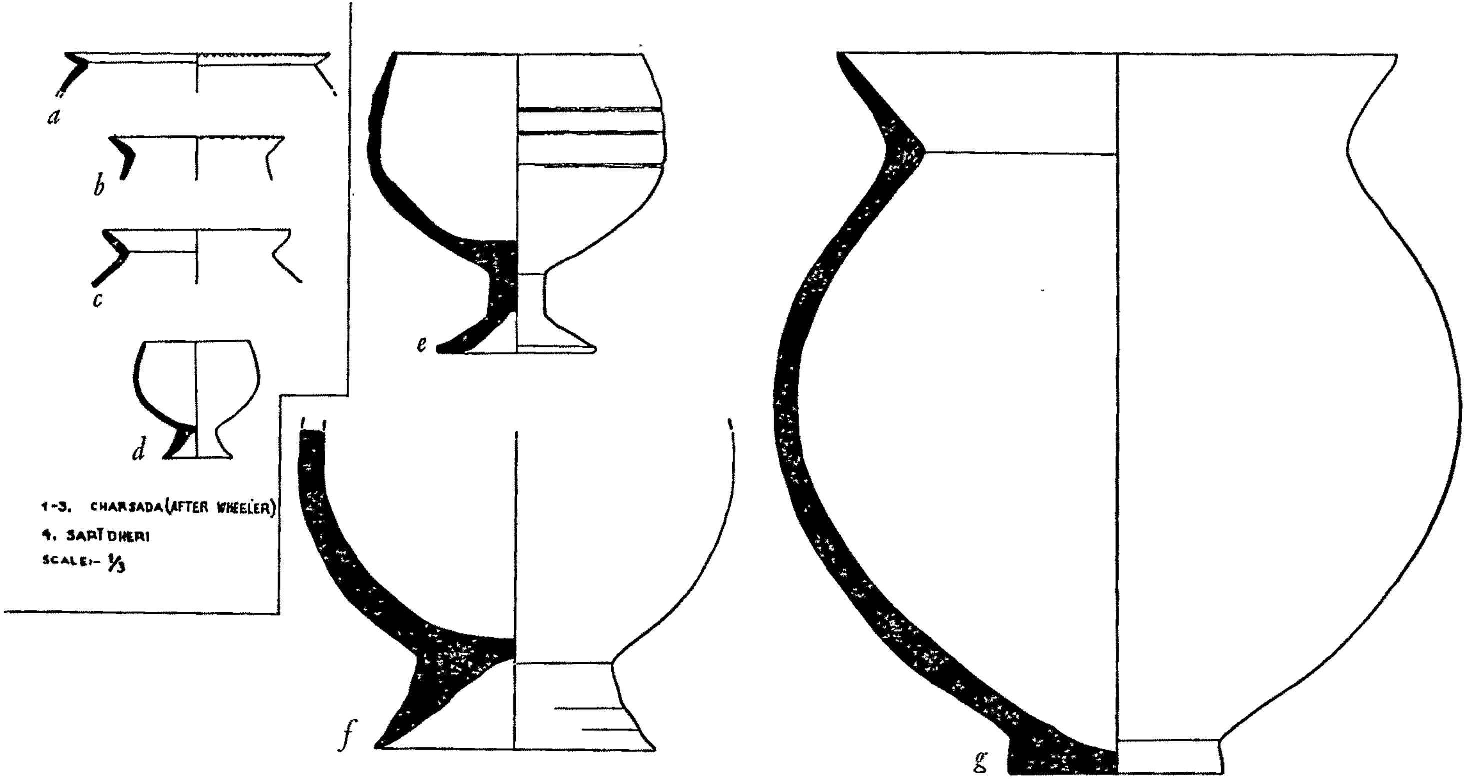

Fig. 1 Pottery from Timurgarha (*e*, *f*, *g*) compared with styles from Charsada (*a*, *b*, *c*) and Sarī Dheri (*d*). Drawings *a*, *b*, *c*, *d* are from Wheeler 1962: Figs. 10.3, 11.1, 15.44, and 13.13; *e*, Timurgarha Grave 270, Period III; *f*, Timurgarha Grave 111: grayware from Period III; *g*, Timurgarha Grave 101, Period I.

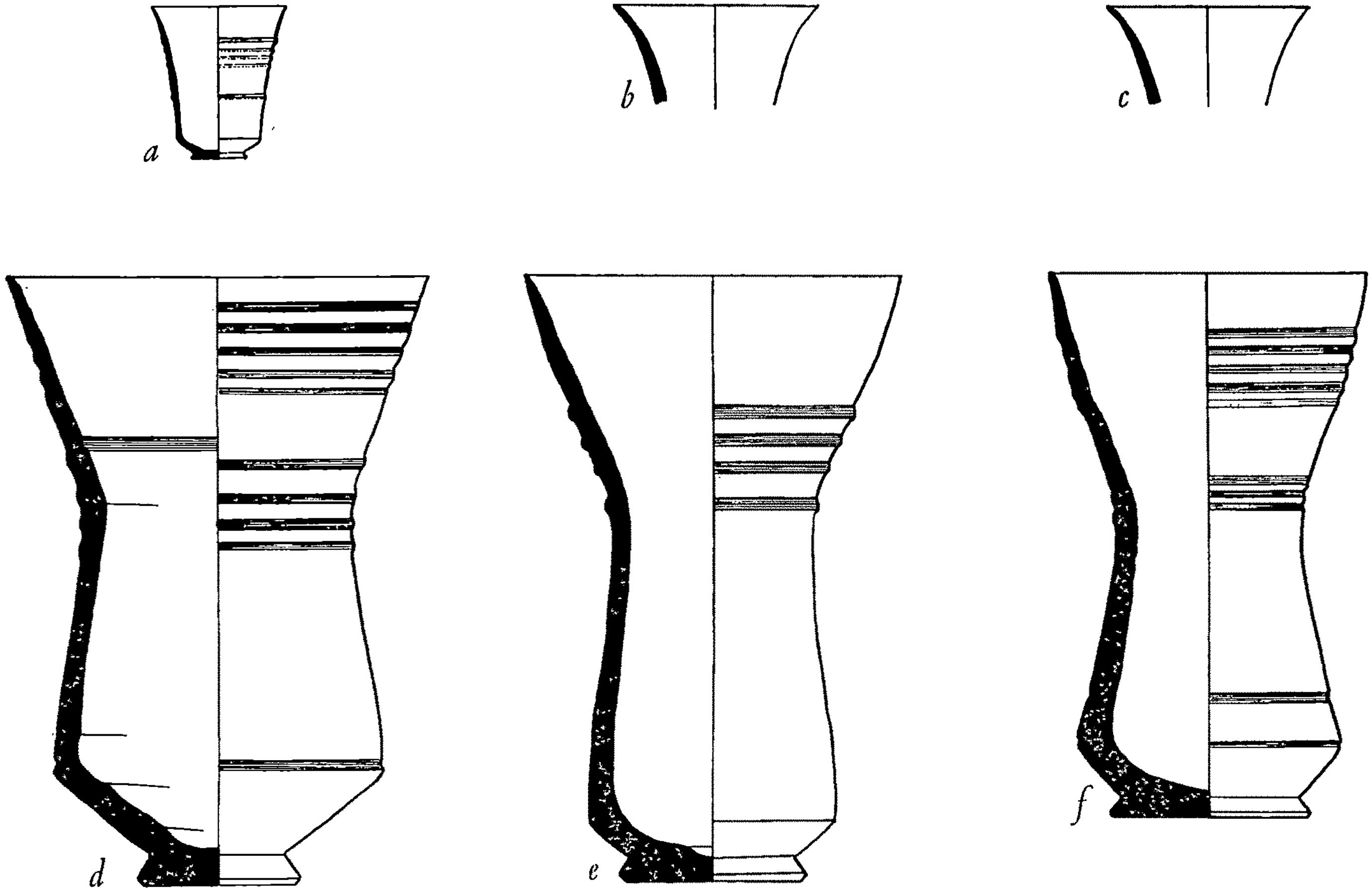

Fig. 2 Soapy-redware from Charsada (*a*, *b*, *c*) compared to Period II and Period III pottery types from the graves at Timurgarha (*c*, *d*, *e*). Drawings *a*, *b*, *c* are from Wheeler 1962: Figs. 10.3, 11.6, and 11.5; *d*, Timurgarha Grave 2 of 1964, Period I; *e*, Timurgarha Grave 254, Period III; *f*, Timurgarha Grave 213, Period II.

PERIOD II

At Timurgarha, some graves of this period have been stratigraphically separated from those of Period I. They lie on the top of the first-period graves. There is a marked ritual innovation in this period. Though the inflexed burials continued with slight material innovations, as evidenced at Thana in Malakand Agency, we find in Period II for the first time the evidence of cremations and urn burials (Plate III*a*). The grave pits were dug in the same fashion as they were in the first period, but in place of the full skeleton, Period II burials have either partly-recovered charred bones deposited along with pots, or simply urn burials with or without ashes or bones. Two of the large urns are most remarkable (Plate III*b*). In make and form they are similar to Variety 2 of Period I redware; however, the Period II urns are exceptionally large in size. Below the neck, these urns have two holes for eyes, an applied nose, and a large hole for the mouth. The urns are usually covered with saucer-shaped lids that have holed handles in the middle of the convex side, unlike the lids of the first period that had knobs on the concave side. The older varieties continued in Period II also, and a fourth variety shows a holed handle in the middle of the concave side of the lid.

The pottery forms show remarkable evolution from those of Period I and at the same time show some new types. Again, the ceramics are divisible into two main groups: grayware and redware. Grayware generally includes drinking vases, cups, and narrow-necked bottle-shaped jars, but rarely offering stands (only two examples), and a lugged, semicircular bowl (from Thana). Redware has offering stands, cooking vessels, drinking vases, handled jars, cooking vessels on stands, water vessels of different sizes, and urns of different sizes and shapes.

Grayware

Period II grayware has the same characteristics as grayware of the first period. Generally, the pieces are:

1. Narrow-waisted tall drinking vases, however, Subvariety 1*a* (see Plate II*a*) of the earlier period is totally absent here; Subvariety 1*b* of the earlier period (Fig. 2*d*) is found more frequently and in different sizes; one such vase of medium size has one handle on the side; Subvarieties 1*c* and 1*d* of the earlier period continue in equal number, though, strangely enough, from Thana, in Malakand Agency, we obtained only two broken examples of these tall drinking vases—one in gray and the other in red;
2. Middle-sized drinking goblets like Variety 2 of Period I; found both at Thana (Fig. 3*d*) and Timurgarha (Fig. 3*e*). Some show cordons in the upper part. At Thana, they are found in redware also.
3. Drinking cups of both subvarieties, as in Period I; but there is a new subvariety (3*c*), an incurved drinking cup with a hole at the bottom. Two examples were found at Timurgarha.
4. A new variety: narrow-necked bottle-shaped jars with flat-disc bases and flaring lips; some such jars have cordons on the body; from Thana there are some examples in red also;
5. Two examples of offering stands with incurved bowls and hollow stems—found in grayware at Timurgarha;
6. A semicircular bowl with thickened rim, flat-disc base, single-holed lug at the lower

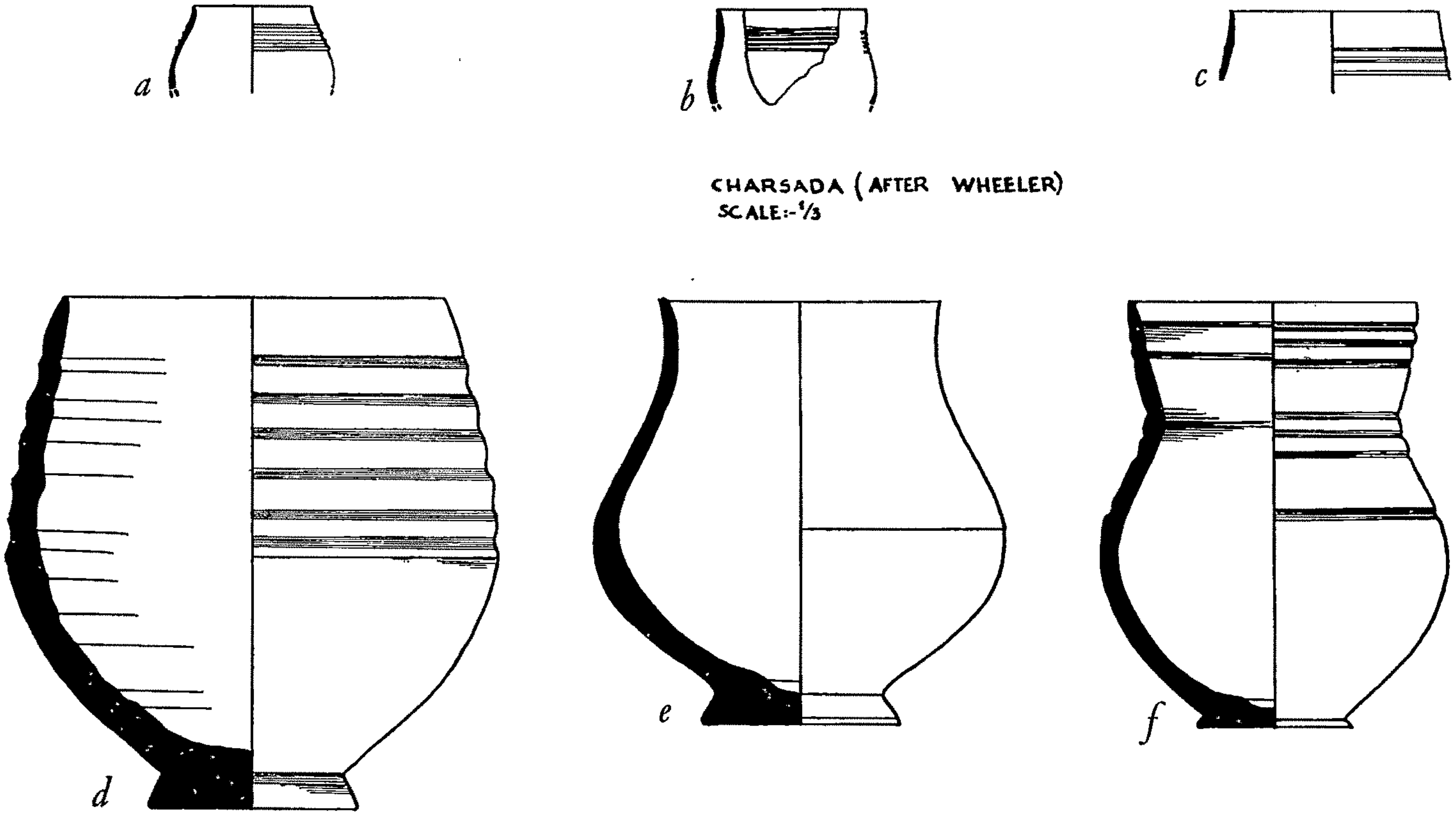

Fig. 3 Soapy-redware cordoned bowl from Charsada (*a*, *b*, *c*) compared with similar ware from Thana (*d*) and Timurgarha (*e*, *f*). Drawings *a*, *b*, *c* are from Wheeler 1962: Figs. 10.4, 10.5, and 11.3; *d*, Thana grave, Period II; *e*, Timurgarha Grave 213, Period II; *f*, Timurgarha Grave 105, Period III.

side, and cordons at the upper part—found at Thana—the only specimen found.

Period II redware is like the redware of the earlier period with the following exceptions:

1. Offering stands are of similar texture and characteristics as in Period I, but Subvariety 1*a* is absent here. Subvarieties 1*b*, 1*c*, and 1*d* are present, but the last is rare.
2. Cooking vessels in Period II continue to have the same characteristics as those of the earlier period except that they are found in different sizes. One such vessel has a single handle attached to a side, and the other has a double handle—one handle attached on either side. One example in fine, levigated clay has additional irregular line incisions at the neck. The following are new varieties in fine levigated clay.
3. There is a new variety of cooking vessel form on either tall stand or pedestal. This variety is known in Period II only from Timurgarha.
4. There is one example of a narrow-necked vase with globular body on a flat-disc base from Timurgarha (Plate IV*a*, 1).
5. There are globular urns with narrow necks and flaring rims on flat-disc bases found in different sizes. The largest size has nose, eyes, and mouth (already mentioned). A smaller size from Thana has line incisions at the neck and three pairs of applied insignificant knobs below the lines. Another smaller example from Timurgarha has a hole for the mouth and triple line incisions, making five arcs around the neck.
6. There are two middle-sized water vessels from Timurgarha, with slightly out-turned rims.
7. There is a middle-sized urn from Thana with four holed lugs at the sides. The shape is an enlarged version of Variety 2 in grayware.
8. There is a tumbler with a rounded body and a tapering upper half.
9. There is an extremely narrow-waisted drinking glass, almost like an hourglass. Only two examples are from Timurgarha.

Small Finds

In this second period, the metal is again bronze. Besides the two varieties of bronze hairpins of the earlier period, we have two more new varieties. One has a large-sized conical top, and the other has its upper part flattened like a leaf. We have also a bronze finger ring and bronze needles with eyes; the eyes were made by folding one end over. We have also flat, small discs of stone or shell for decorating or tying the hair. Terracotta biconical beads continue in this period, but a new variety is of a barrel-shaped bead in paste. Hairpins of bone and ivory are also found. One gold earring and one silver wire earring were obtained from Timurgarha and Thana respectively.

PERIOD III

The graves of this period are found just on the surface at Timurgarha, Inayatkila in Bajaur, and Ziarat in Talash Valley. In the two latter places, huge slabs of stone lie on the surface of the ground indicating the location of the graves. At Timurgarha, where extensive excavation was done by the University of Peshawar, the evidence is very instructive. Besides the continuation of the two ritual practices of Period I and Period II, we observe a new practice of partial or fractional burial in the graves made in the same old fashion. It appears that the dead body was exposed in the open field and then the bones were collected and deposited in the grave

(Plate IV*b*). Some of the pottery forms are entirely new, and they are very fine in texture, suggesting an entirely new pottery tradition, though the older forms and fabric continued here also. And finally, in Period III, for the first time, materials of iron and terracotta human figurines have been recovered. If these features are not sufficient to justify the arrival of new people, they certainly betray the borrowing of new traditions and the enrichment of the older cultural milieu.

Like the first and second periods, pottery in Period III is in grayware and redware. But the redware falls in three different categories: pottery of coarse, gritty material; pottery of well-levigated clay, but thicker in fabric; and pottery of fine levigated clay extremely thin in fabric.

Grayware

In this period, all the Period II varieties of grayware continue, with the exception of the following: the offering stand in gray is not found here. The tall, handled drinking vase is not found, and Variety 4, the narrow-necked bottle-shaped jar, is conspicuous by its absence. The incurved drinking cups and semicircular bowl also have not been found. But we have some remarkable new additions.

The most important addition is the champaign cup on a stand (Fig. 1*e*). A similar cup (or bowl) on a pedestal, thick in section, is found in redware (Fig. 1*f*).

We have found one example of a narrow-waisted hourglass type in gray.

Finally, it may be pointed out that among the tall, narrow-waisted drinking vases, a few are thin in section and show extremely narrow waists.

Redware

Category A

Cooking vessels of rough, gritty texture of the earlier periods continue here. They are of various sizes. One has a single handle attached to the side. We have not found any vessel of this type on a stand or pedestal in this period.

Category B

1. It is in this category that we have all the offering stands. All the varieties of Period II continue here. In addition, there is a large-sized dish on a stand (Plate V*a*, 2). Sometimes the stand was removed and the dish alone was used. Similar dishes were also made without the stand (Plate V*a*, 1).
2. We have found cooking vessel forms also in this material and fabric. Such vessels often show line decorations at the neck.
3. Water vessels are of different sizes and have a tendency towards taller necks. Some of them are decorated with line incisions or fingernail impressions.
4. One new variety of water vessel shows a well-formed straightened rim above the narrow neck.
5. Another important addition is a liquid pouring jug with a pinched mouth and a handle on the side (Plate V*b*, 1).
6. Finally, we have a new variety of lugged urns of medium size with a collar-like rim. For such urns we found lids with or without a knob.
7. Mention may also be made about the tumblers (Plate VI*a*, 3) and drinking cups in red similar to those found in Period II. Again, we find handled medium-sized drinking goblets (Plate IV*a*, 3).

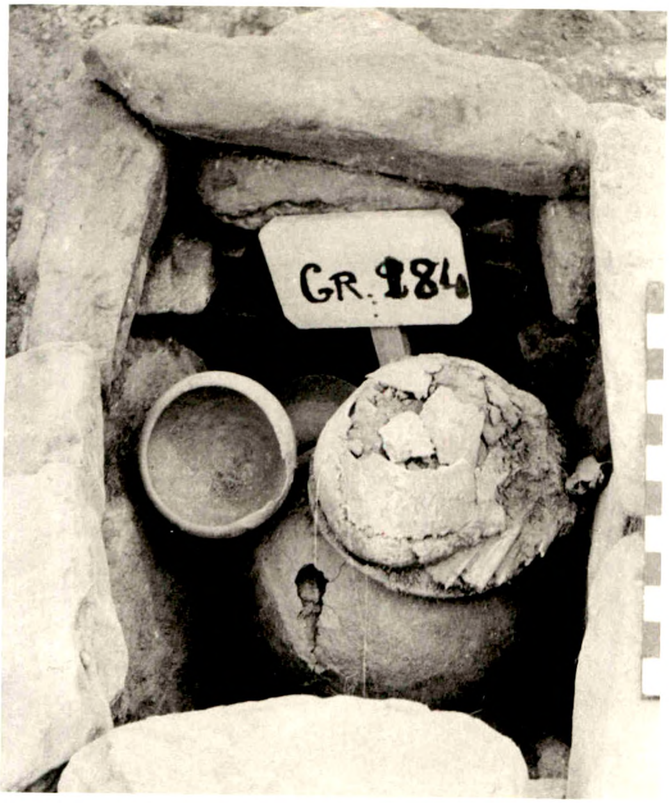

Plate III*a*
Urn burial at
Timurgarha.

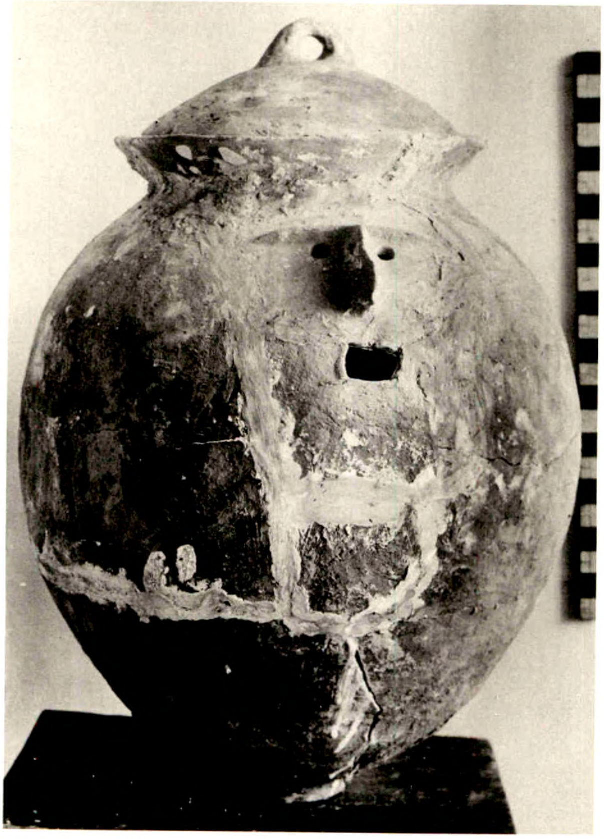

Plate III*b*
Urn from Timurgarha,
Grave 218, Period II.

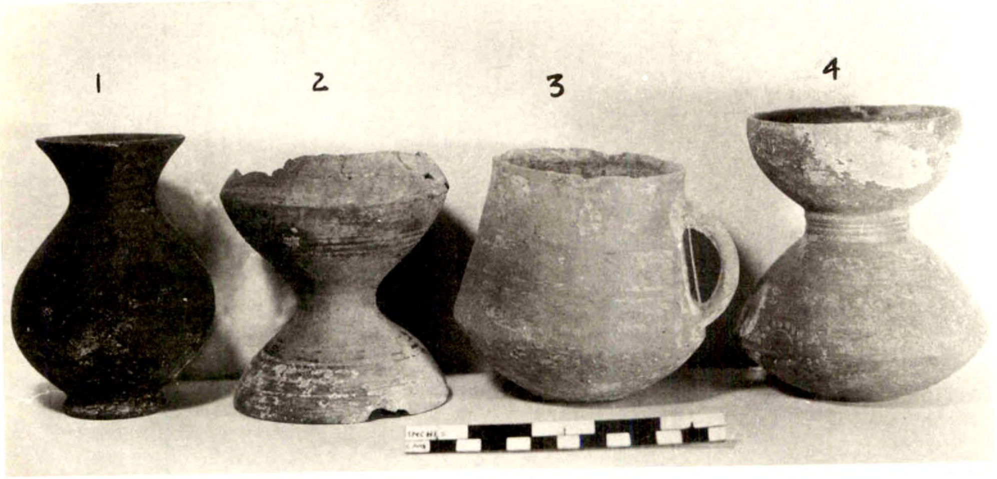

Plate IV*a* Pottery from Timurgarha:
(1) narrow-necked vase, Grave 251, Period II; (2) "hourglass" vase, Grave 149, Period III;
(3) handled goblet, Grave 102, Period III; (4) "hourglass" vase, Grave 149, Period III.

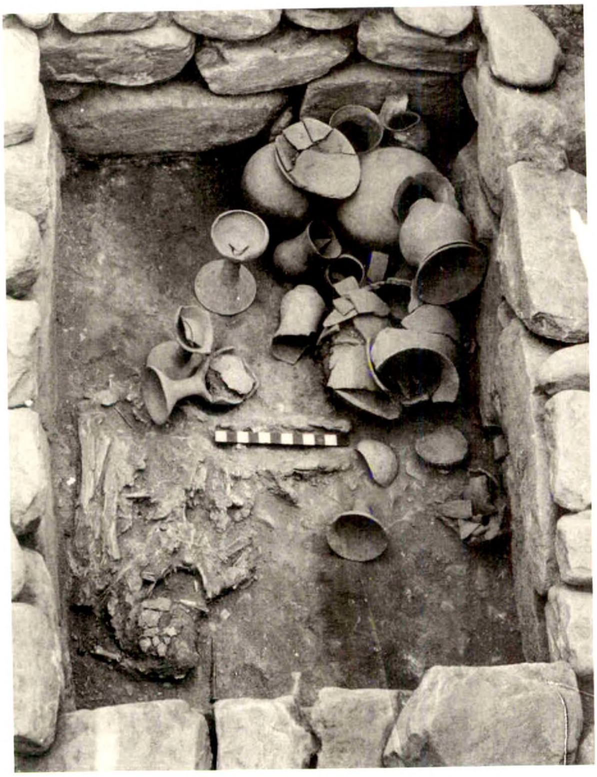

Plate IV*b* Timurgarha fractional burial.

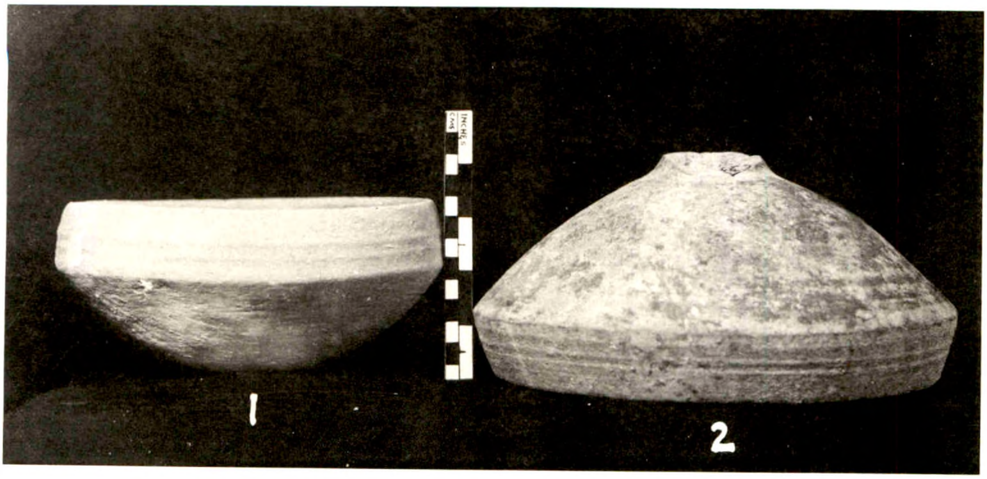

Plate V*a* Timurgarha pottery: (1) dish from Grave 197, Period III; (2) offering stand for dish that was broken, Grave 142, Period III.

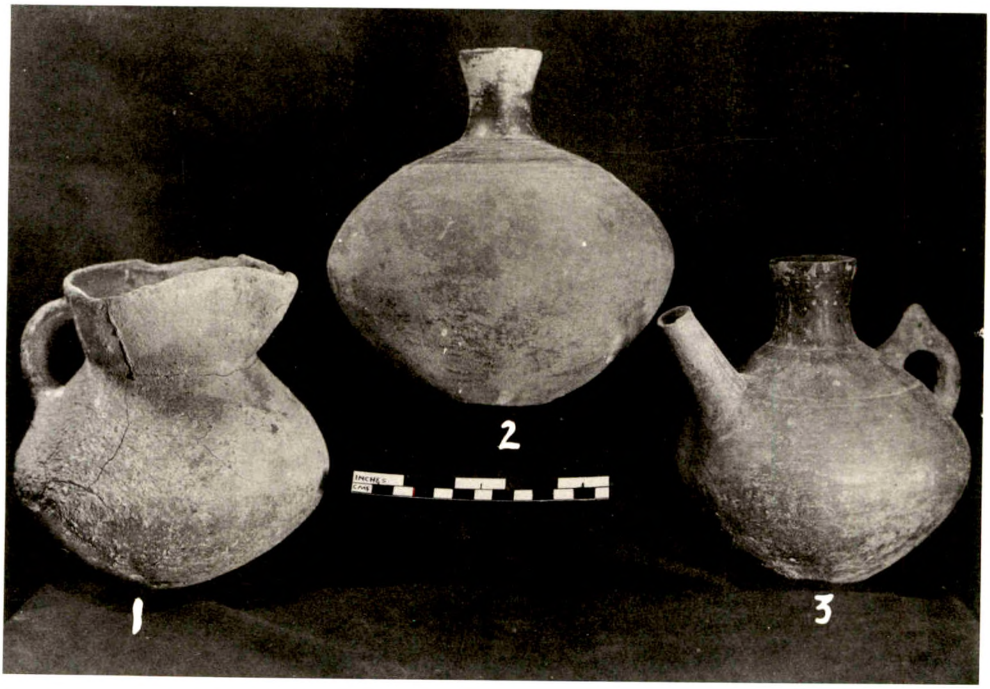

Plate V*b* Timurgarha finds: (1) handled jug, Grave 140, Period III; (2) *surahi*-shaped, tall-necked water vessel from Grave 149, Period III; (3) *badna*.

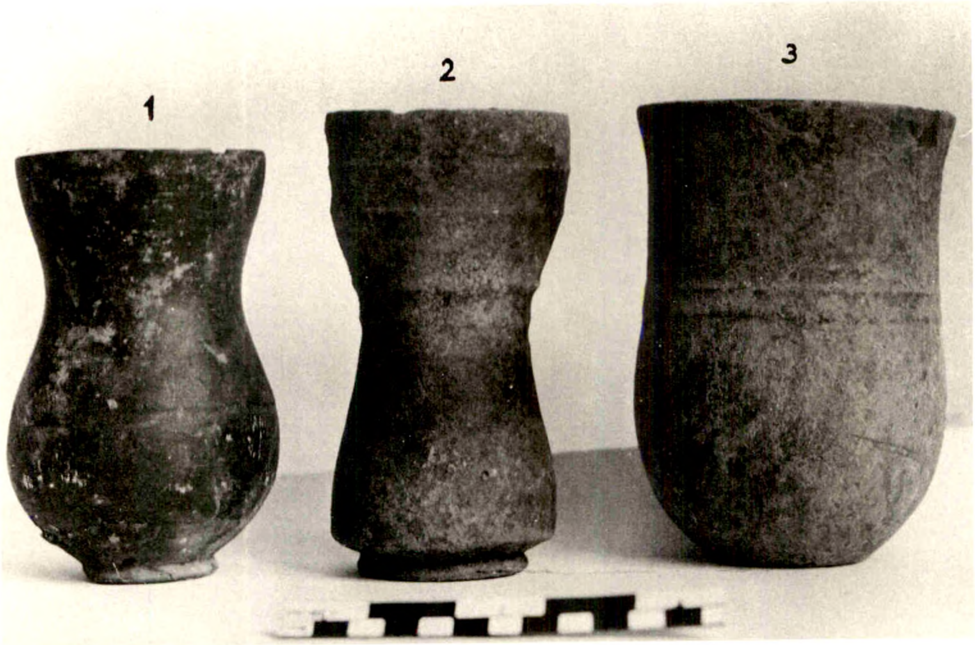

Plate VI*a*
Tall drinking vases and tumbler (3) from Timurgarha, Period III.

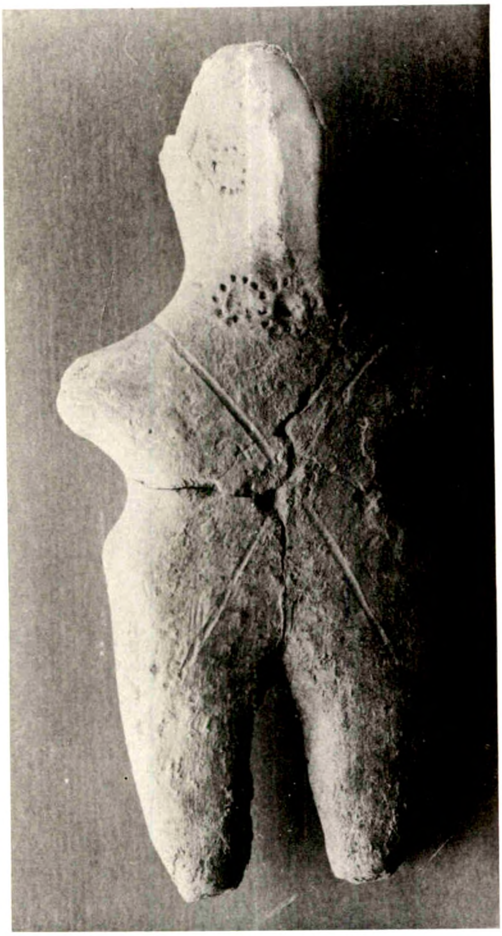

Plate VI*b*
Timurgarha terracotta figurine, Period III.

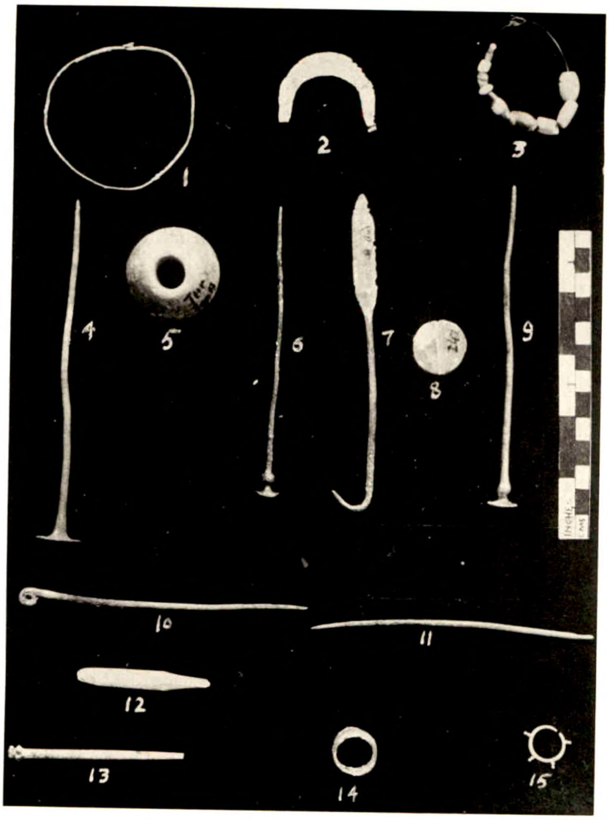

Plate VII*a*
Bronze objects and other artifacts from Timurgarha:
(1) bronze wristlet;
(2) bronze ear pendant;
(3) beads of precious stones;
(4, 6, 7, 9) bronze hairpins;
(5) terracotta bead;
(8) tie disk; (10) bronze needle;
(11, 13) ivory hairpins;
(12) ivory borer;
(14) bronze finger ring.

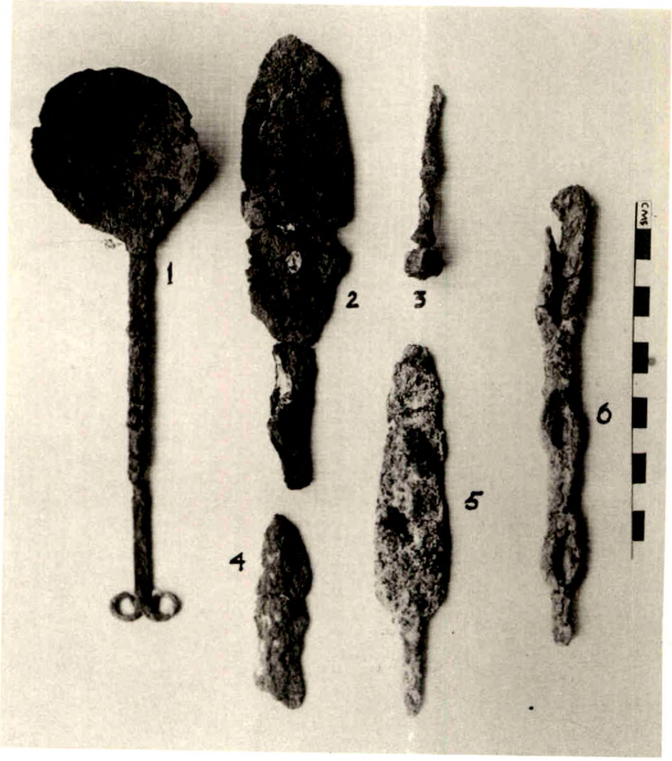

Plate VII*b*
Iron objects from Timurgarha (1, 2, 3, 6), Period III. and from Inayatkila in Bajaur (4, 5): (1) spoon; (2) dagger: (3) nail; (4, 5) daggers; (6) horse bit.

Category C

Category C includes vessels of fine-levigated clay, extremely thin in section, and almost all the forms are new.

1. The most important is the *surahi*-shaped tall-necked water vessel (Plate V*b*, 2). Some of them have cordons on the body. One such vessel is like the modern *badna*-type (Plate V*b*, 3), with a spout and a handle. The last-mentioned *badna* and two *surahis* have their necks and shoulders painted dark black.
2. The second common type is the extremely narrow-waisted tumbler almost like an hourglass (Plate IV*a*, 2 and 4).

Terracotta figurine. It is in this period that we have found a terracotta human figurine made in hand, rather flat, almost similar in technique to the so-called baroque ladies of Charsada (Wheeler 1962:104–108). Here the back of the head is pressed inside with the thumb. The figurine has cross-bands shown by incision (Plate VI*b*).

Bronze objects. Here we find all the varieties of bronze hairpins as of Period II. Besides, there are finger rings, ear pendants, and a wire wristlet (Plate VII*a*). The most important discovery is a bronze cup.

Beads. Besides the terracotta biconical beads, we have one stone example of a flat-bottomed conical bead, disc and barrel-shaped beads of carnelian, and banded agate and paste.

Iron. The iron objects are very significant. They include conical-headed nails, a handled spoon, a dagger, and the most remarkable find is the horse-bit. From Inayatkila in Bajaur, we recovered one short dagger with a mid-rib (Plate VII*b*).

CONCLUSION

Before I draw any conclusion from the materials recovered from the graves, let it be recorded that a settlement site of these people has been discovered both at Timurgarha and in Swat State near Mingora. A preliminary probing has yielded two periods of construction, but it is too early to comment on the problem of the settlement. Hopefully, this year's excavation will throw some light on it.

It is also necessary to make a comment on C. S. Antonini's "Preliminary Notes on the Excavation of the Necropolises Found in Western Pakistan" (Antonini 1963). These notes were published on the basis of the Italian excavations in Swat. All the three types of burials that I have mentioned were noted by the author in the Swat excavations, but no attempt has been made to seek any stratigraphic or chronological distinction, though the excavator noted (page 15) the evidence of cremation lying on the tops of some tombs. Antonini then draws a chronological conclusion and says: ". . . the relationship to Buddhist remains found near the cemetery has offered the first secure data for dating the finds: the necropolis is earlier than the diffusion of the creed, and therefore earlier than the Buddhist works in this zone" (page 16).

But what is the date of the Buddhist works in Swat? At the earliest, the finds are of the post-Asokan period (mid-third century B.C.), and perhaps even later. It is not clear from the report whether there was a break in the occupation of the site by the "grave people" and the later Buddhists. All the pottery types, except the urn, illustrated with this report (Plate III*b*) belong to what I have designated Period III. The Swat urn is the same as the Timurgarha urn illustrated in Plate III*b*, except that there are three holes at the mouth. The author's remark: "The outer surface of the vases is (or at least was) glazed and often polished" (page

19) is very misleading. We have not found any glazed pottery at Timurgarha, nor have we seen any from Swat. By "polishing" the author probably means burnishing. The author has compared (page 23) a terracotta figurine found in Tomb 16 with the one in Peshawar Museum. But the Peshawar Museum specimen does not come from Baluchistan, as Antonini says. Its place of discovery is unknown. Antonini's description is important: "It is very flat, with the central part of the face and the nose very prominent; the shoulders, quite large, give the idea of arms, the legs are marked off only by a simple line." I made a personal examination of the figurine in Swat and found the parallels in *Taxila,* 1 and 2, Plate 132 (Marshall 1951). As I have said before, these terracottas from the graves have a direct relationship with the so-called baroque ladies from Charsada. At the end of her notes, Antonini finds similarities with the ceramic tradition of Tepe Hissar II B.

Commenting on Antonini's report, Professor Giuseppe Tucci, the director of the Italian Archaeological Mission in Pakistan, says: "It seems to me that it can hardly be doubted that they should be attributed to the Assakenoi of Alexander's historians" (1963:27). I feel that such attribution is premature. There seems to be a great disparity between the date of Assakenoi referred to by Alexander's historians and that of Teppe Hissar II B, with which a cultural link has been sought by Antonini. At this stage, it is necessary to classify the excavated materials and find the different cultural groups that fall in a sequence.

To begin, the material from the graves clearly falls into one of two distinct categories: either from graves that have yielded only bronze or metallic objects or from graves that have produced both bronze and iron. Evidently, we have here the remains of a people or peoples who were passing from the Bronze Age into the Iron Age. On the basis of pottery types and other considerations, I have subdivided the Bronze Age into two subperiods—graves that show only complete burials with a particular group of pottery forms and graves that show an additional ritual practice of cremation or urn burial together with advanced pottery forms. Following the above classification, we have three distinct groups and, from our analysis, the groups belong to three distinct periods, one following the other without any break.

Period I	Represented by the complete burial: bronze hairpins, two varieties and distinctive pottery types—carinated, narrow-waisted, tall drinking vases (Plate II*a*) and offering stands with straight-sided bowls (Plate II*b*).
Period II	Represented by the complete burial plus cremation and urn burials. Bronze, silver, and gold are found. Two more varieties of bronze hairpins are known. Pottery forms show remarkable evolution. The most important forms are the urns of different sizes, cooking vessels on stands, and narrow-necked, bottle-shaped vases.
Period III	Represented by the complete burial, cremation and urn burials, plus fractional burials after exposure. The important new finds are iron tools and weapons. Among other discoveries, beads of precious stones and terracotta figurines are important innovations.

In the Swat excavation, two of the figurine types are similar to Charsada figurines (Wheeler 1962: Plate xxiii, items 12 and 13) though Wheeler's examples from Charsada show more ornaments. The Timurgarha figurine (Plate VI*b*) has greater affinity with the Charsada figurine shown in Wheeler, Plate xxvi, item 4, which has its legs apart. The Timurgarha example is a male figure with a thumb impression on the back of the head, probably made for a ritualistic purpose. On the question of dating, Wheeler writes: ". . . they came in sometime during the third century B.C. and lasted until the latter part of the second century B.C."

(1962:206). The excavation conducted by the University of Peshawar at Shaikhan Dheri site in Charsada has now revealed that this type of figurine continues to the very end of the Kushan period. As typological relationships have now been established between these figurines from Charsada and those of the graves, perhaps a chronological link can be established between the two.

It is from the study of pottery forms that we get a better idea of cultural evolution in Gandhara. For the Gandhara region, the best published material is the report of Wheeler on his excavation of the Bala Hisar mound in Charsada: typical forms of pottery fall in different periods. Some of the forms that Wheeler attributes to sixth–fourth century B.C. are most instructive, as they have a great bearing on the pottery forms of the last period of the grave material. In text, I have illustrated (Figs. 1, 2, 3) the types from Charsada, as given by Wheeler and their parallels found in Timurgarha and Thana excavations.

The commonest pottery type in the graves found in all three periods is shown in Fig. 1*g*. This type compares very well with the "rippled rim forms" of Charsada (Wheeler 1962: 37–39), as shown in Fig. 1*a*, *b*, *c*. The condition of the pieces from both sites is similar. Wheeler did not find a complete example. The only difference is that some of the rims at Charsada have ripples on them. Pedestalled cups (Fig. 1*e*, *f*) are common in the graves, but they were only from Period III. There is a close parallel between the Sari Dheri example (Wheeler 1962: 48) shown in Fig. 1*d* and the Timurgarha cup, Fig. 1*f*.

Another close parallel is found in pottery from Thana and Timurgarha and in what Wheeler calls soapy-redware from Charsada (1962: 39). Two forms in this ware (Fig. 2*a* and *b*-*c*) have close similarity to the grave pottery (Fig. 2*d*, *e*, *f*) of Period II and Period III. In the graves, this type pottery generally is found in gray, but examples in soapy-redware are also found. In the graves, we have several other varieties in this form (see above).

Lastly, we come to middle-sized drinking goblets (Fig. 3*d*, *e*, *f*) which compare well with what Wheeler (1962:46) describes as a cordoned bowl from Charsada (Fig. 3*a*, *b*, *c*) Wheeler did not get a complete specimen. His examples are in soapy-redware but the cordoned pottery we found in the graves is both in soapy-redware and in gray, but the latter is more common.

The parallels mentioned above do not prove the contemporaneity of the graves with the sixth–fourth century B.C. materials from Charsada. The pottery forms, terracotta figurines, and other materials from Charsada are a definite improvement on those of the last period of the grave goods. On the other hand, the distinctive pottery types of Period III (extremely fine pot forms) are absent from Charsada. I am therefore persuaded to place the Period III as determined from the graves to a period anterior to sixth century B.C., i.e., in the pre-Achaemenid period. The last period settlement at Timurgarha, the large number of graves, along with the increased grave goods suggest at least two centuries for their duration, if not more. Hence, Period III falls in eighth–seventh centuries B.C. This dating, by the way, moves the known introduction of iron back into Gandhara by at least two centuries. (See Wheeler's remark on this question (1962: 33–36)). We would assign a similar duration to Period II, i.e., tenth to ninth centuries B.C. Period I should be dated sometime in the second half of the second millennium B.C.

The present classification and tentative dating (to be confirmed later by radiocarbon dating) presents for the first time from a sequence study in this region, a connected series of cultures in Gandhara, beginning at the middle of the second millennium B.C. and continuing into the Historic period. It is about this time that we learn from literature about the historic play of the enigmatic people in this region well known as Aryans. If this research of the grave complex has not led us to the tracks of the Aryans, we are nevertheless close upon their heels.

I believe the 1966 excavation is sure to give definitive answers to this problem.

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*ADDENDUM

The whole report on the grave material is now published under the title "Timurgarha and Gandhara Grave Culture" by A. H. Dani in *Ancient Pakistan* III, 1967.

Several Types of Obsolete Madagascan Pottery

Received 15 June 1967

PIERRE MICHEL VÉRIN*

BECAUSE of its insularity, the island of Madagascar has preserved, as if in a sanctuary, survivals that have disappeared in the homeland of the protoculture. This observation can be made for certain facts in the language as well as for material culture remains.

Present Madagascan pottery and pottery of the nineteenth century retain morphological types that have been in use for centuries. For example, note the duality in cooking vessels: a globular cook pot is used for meat, fish, and vegetables, while a cook pot with a flat bottom is designed and used essentially for cooking rice.

The technological regression that seemed to affect Madagascan pottery since at least two centuries ago (Vérin and Boulfroy 1964) continues until today in the quality of the manufactured goods and the variety of forms. Three types of objects that are still in use from the nineteenth century have actually almost disappeared. They are the footed plate, the vessel with vertical side walls slightly enlarged at the bottom, and the oblique bowl called *tasitasy* by the Bezanozano. (To simplify the text, illustrated artifacts (Fig. 1–Fig. 5) are referred to by alphabetical identification, rather than the laboratory catalogue numbers that also appear on the drawings.)

FOOTED PLATES

The most beautiful footed plates were discovered at Vohitrandriana on Lake Alaotra, an eighteenth-century site that was destroyed in the nineteenth century by the Merina invasion. L. Molet discovered a fragment of a plate in 1956 and thought it was the cover of a jar used as an urn (see Vérin 1962). Actually, the upper parts of nineteenth-century jar covers have high, pointed hollow handles. A jar cover fragment might be mistaken for a footed plate base that had been accidentally sectioned in the middle of the tabular support.

At the time of the 1963 excavations at Vohitrandriana, in which a certain number of pieces were discovered (Fig. 1), I was hesitant about what significance these objects should be given (Battistini and Vérin 1966). The pieces somewhat resemble but seem a bit larger

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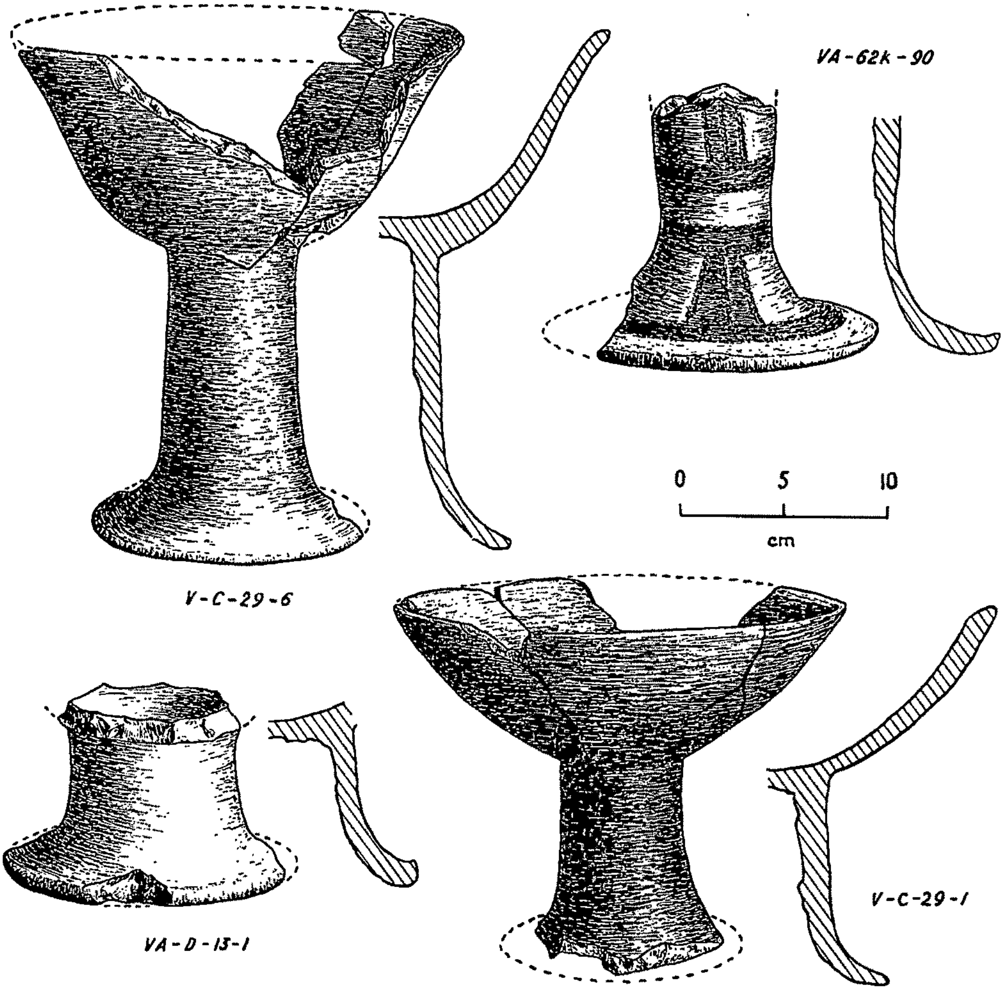

Fig. 1 Footed plates from Vohitrandriana (Lake Alaotra).

than incense burners that are found in many regions of the island; besides, their interior decorations are not in accord with the burning of the essences incense burners are made to consume.

According to a personal communication from J. T. Hardyman, the Sihanaka footed plates that certain old people of the region of Imerimandroso still remember go back to a tradition of pottery that François Martin alluded to in the seventeenth century. A translation of his notes:

> The inhabitants were very curious about pottery; in the same house of which I speak, there was pottery in vase form of three different sizes, the first ones, which were the largest, were placed on the lowest stage of the shelves, the others, above and by row; everything inside the dwelling was surrounded with pottery, and I believe that there were four or five hundred of these kinds of vases (Froidevaux 1896, p. 40).

I believe that the vases to which Martin referred were precisely footed plates, rather than jars or cooking pots. The ancient hut of King Andrianampoinimerina also has preserved faithfully in Tananarive (in spite of restoration) a series of pottery, of which a large number are plates, on sets of shelves.

Two examples of almost complete footed plates discovered in Vohitrandriana (Fig. 1, *a* and *d*) have a tubular support of 12 cm in height and 3.5 to 6 cm in diameter. The basin is 22 cm in diameter and has a depth of 7 to 9 cm. The foot flares at the base of the support and has a maximum diameter of 16 cm. It is the flared form of this foot that resembles the covers of jars or cooking pots.

One plate has a particularly thick-set aspect (Fig. 1*c*). The foot is 7.5 cm tall with a tubular diameter of 8 cm. Its upper part is missing.

The Sihanaka footed plates (excluding Fig. 1*a* and the tubular support recovered in the dug-out canoe of Didy—not shown on the drawings) whether entirely coated with graphite that gives them a leaden or blackish shade or redressed in a reddish color, are uniformly covered on the exterior walls of the basin, or they are decorated on the support and the foot with concentric rings and vertical graphited lines that contrast with a bottom coated in red.

Footed plates from Imerina are represented in Fig. 2. The two complete specimens *(a, b)* come from the collections of the Palais de la Reine at Tananarive [I wish to thank Madame Randriamboatsimarofy for allowing W. Rajesitera, designer of the figures, to draw them.] The broken specimen *(c)* was uncovered in the site of Angavobe near Carion that was mapped and excavated by the Centre d'Archéologie in April 1966. The three pieces are of well-fired clay covered with graphite, as was the piece from Vohitrandriana (Fig. 1*a*). The dimensions are comparable, as well, since the largest Merina plate is 25 cm in total height and 24.9 cm in maximum diameter in the basin; the measurements correspond within 2 or 3 cm to the height and depth of all the others recovered, except for the plates shown in Fig. 1, *a* and *d*.

The traditions of *Tantaran'ny Andriana* [Traditional book of Merina history] mention footed plates in opposition to others that are less elaborate; the following is a translation:

> The plates were of three kinds: those with long feet, those with round feet, and plates in clay. One smeared them in graphite to make them black; the plates in clay were red because this is the color of the earth (Chapus and Dandouau 1953, p. 61).

Pieces found in the caverns of Isandra are represented in Fig. 3. The caverns are 21 km to the west of Fianarantsoa; they were intensely occupied in the eighteenth and nineteenth centuries. Fig. 3*b* is representative of plates with round bases analogous to the pieces mentioned for Imerina by the *Tantaran'ny Andriana*. Fig. 3*d* is the most elaborate plate, since its base rests on a castellated support more than 4 cm high. Fig. 3*a* (which is shown with the largest part turned upside down) might remind one morphologically of the footed plates from Antsihanaka and Imerina, if its tubular part were closer to the ground. In the upside-down position shown, it is perfectly stable and seems to have been effectively made to be set on this tubular extremity. The design has been used for the covers of jars, so that when the vessel with water is uncovered, the cover must be placed with its handle below, in order not to touch the ground and later dirty the water when the piece is replaced in position on the jar. The purpose of this design was suggested to me by J. Dez who recorded an analogy near Soamanandrariny in the Vakinankaratra. There, for the cooking pots and the jars (a translation follows) "the handle of the cover is called *tongotra*, foot, because one is able to place the

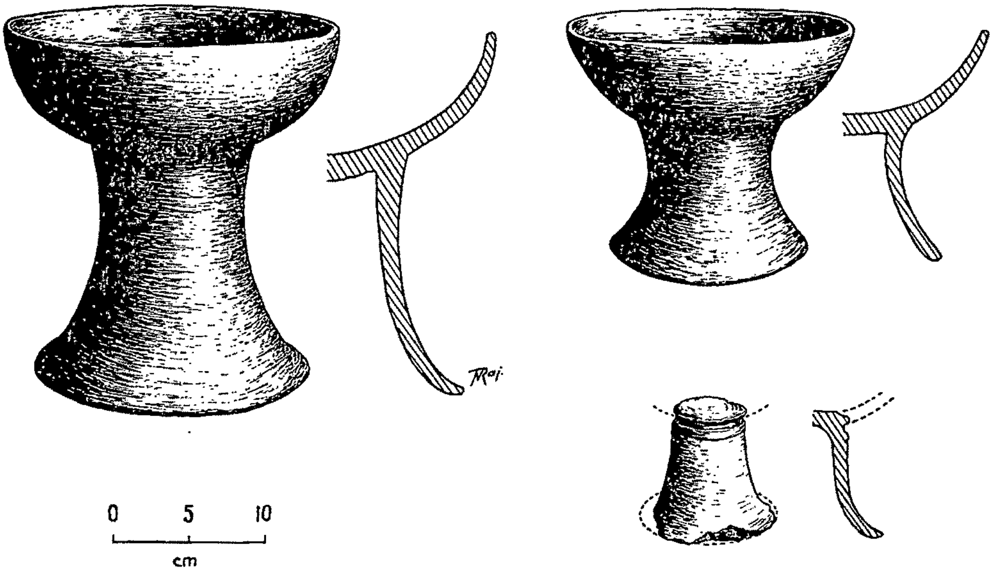

Fig. 2 Footed plates from Imerina: *a, b,* Palace of the Queen Collection; *c,* Angavobe

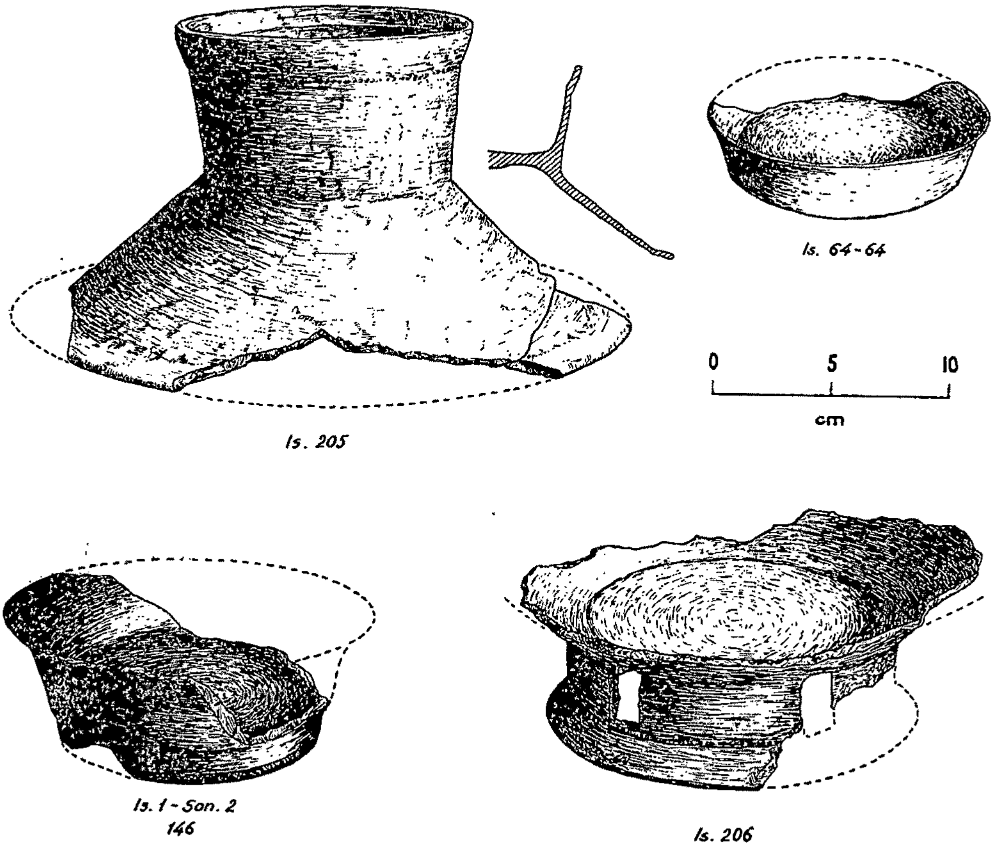

Fig. 3 Pieces found in the caverns of Isandra.

cover in an upside-down position resting on its handle; it is then used as a sort of basin set on a foot; this process also avoids having the rim of the cover become soiled by touching the ground (Dez 1965, p. 55). Dez pointed out, moreover, in a personal report, that the interior cup of the *tongotra* was formerly used as an oil lamp. This is not an isolated case, since Dubois pointed out the utilization in Betsileo of a broken cover whose handle was transformed into a primitive lamp (Dubois 1938).

VASES WITH VERTICAL WALLS AND ENLARGED BASES

Vases with vertical walls and enlarged bases are known among the Betsileos and among the Tanala of the north (Zafimaniry) and of the south (Ikongo). See Fig. 4.

The vase shown in Fig. 4*a* was uncovered at the same time as the bowl shown in Fig. 5*b* on the mountain of Mahafalykely in western Ambodiara-Sakorihy. It was placed near the sepulcher of a king who was rejected from the ancestral *kibory* (collective tomb). The piece was given to me by a descendent of the royal family. These two objects are all the more interesting as R. Linton pointed out the disappearance of the manufacturing of pottery at the moment of his inquiry and that this ancient industry was only remembered by adults and old people (Linton 1933).

Fig. 4*a* is a piece carefully made that was covered with graphite and whose decor is composed of rays arranged on its vertical wall between two circles of triangular impressions. The vase shown in Fig. 4*c* was bought among the Zafimaniry of the region of Ambohitrandriana. It was preserved in a house since a very ancient time. It is different from the vase in Fig. 4*a* in size—21.5 cm high compared to 16.4 cm—and by its absence of body. But there are some similarities in the two objects even though the base of the Zafimaniry piece is more swollen and the upper walls slant in. The vase shown in Fig. 4*d* is equally a Zafimaniry vase from the same region. The drawing is made from a photograph by R. Mallet taken in a rock shelter for burials in the region of Ambohitrandriana (Ambositra Prefecture). I am ignorant of its dimensions, but its form is very similar to the other Zafimaniry piece.

The vase shown in Fig. 4*b* was removed from a cavity in the grottos of Isandra not far from the spot where the vase shown in Fig. 3*a* was found (see Vérin et al. 1965, p. 253, Site 8). In the cavity there were several crumbled fragments of long bones, certain signs of a burial. The piece, of a fairly constant diameter, is rather rough and its decor is composed of two parallel circumferences of impressions.

Another fragment of a vase with a vertical wall was discovered at the surface in the grottos of Isandra. It belonged to a piece 11 cm high only 0.5 cm thick; its external wall is decorated with painted vertical lines grouped in threes. The Isandra vases are close to the pieces identified as D 46–2 that J. Faublee illustrates in *Ethnography of Madagascar* (Faublee 1946, p. 49). The object comes from the Museum of Man (Section B. Delorm); it was found in a Betsileo sepulcher. One is able to make the following observations concerning the Betsileo and Tanala vases:

1. In the regions concerned, they appeared regularly on sepulchers.
2. Their name and their usage are up until now totally unknown.

The vases' association with the sepulchers would lead one to think that they had some ceremonial function: for example, to contain alcohol offered to the deceased on their tombs. However, it is more reasonable to think that the vases were of some use to the living; perhaps they held drink or honey, and so would have been placed next to the deceased with other

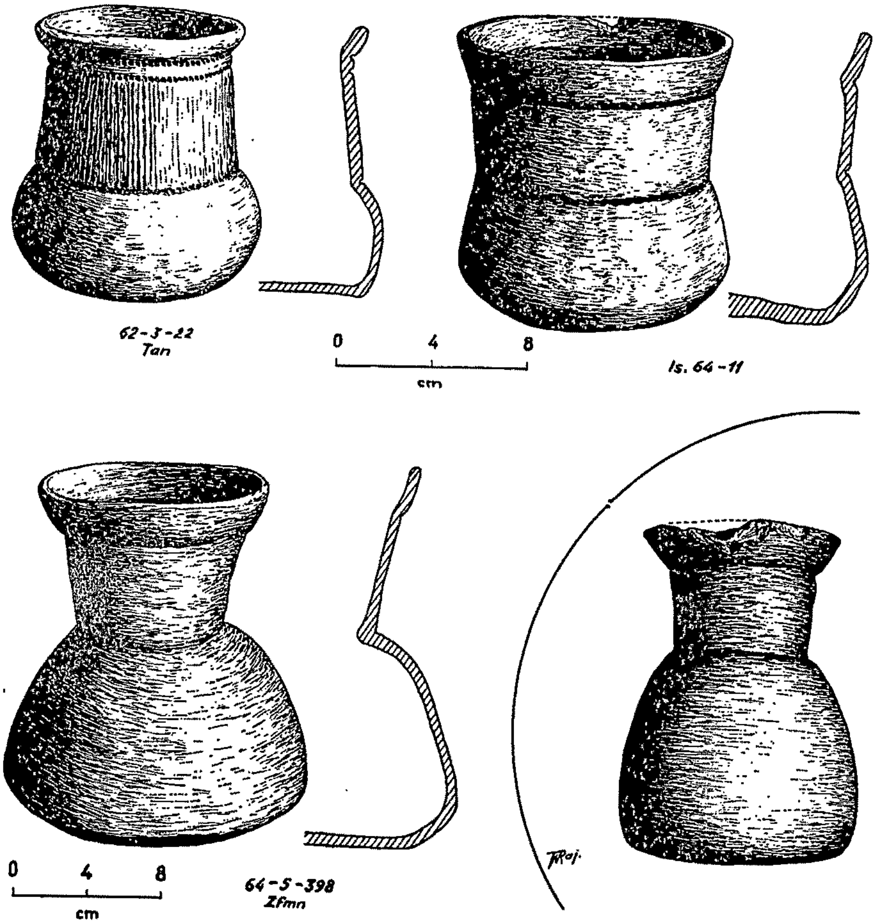

Fig. 4 Vases with vertical walls and enlarged bases; *d* is drawn from a photo in a burial cave of Ambohitrandriana.

objects that were dear to him at the time of his death. This interpretation is moreover corroborated for the Tanala sepulcher by the presence of a machete that must have belonged to the person interred there.

BOWLS

Four pieces are shown in Fig. 5 that were collected among the Bezanozano of the region of Mandialaza by R. Rason, technical assistant at the Département des Sciences Humaines. It carries the name of *tasitasy* and is still used occasionally at the time of traditional sacrifices. It has no polish or decor. (The word *tasitasy* cannot have come from French, but must have originally come from an Arab word that came to Madagascar at the same time as the Islamic pottery.)

The form of the Bezanozano *tasitasy* seems to be a misunderstanding of the bowl from

Vohémar shown in Fig. 5*a*, which in turn was copied by the local artisans from Islamic bowls or Chinese bowls that were imported in this area up until the eighteenth century. The Vohémarian bowl, that without a doubt was considered to be a poor substitute for the pieces sought for importation, does not have any coating or decor. The Tanala bowl, Fig. 5*b*, comes from the same site as the vase with painted walls, has its interior edge graphited and strewn with punctate or linear impressions. The fourth object of the plate was drawn from a photograph taken in a rock shelter in the region of Vohitrandriana in the country of Zafimaniry. It has a ribbed aspect and its firing seems to have been particularly well done.

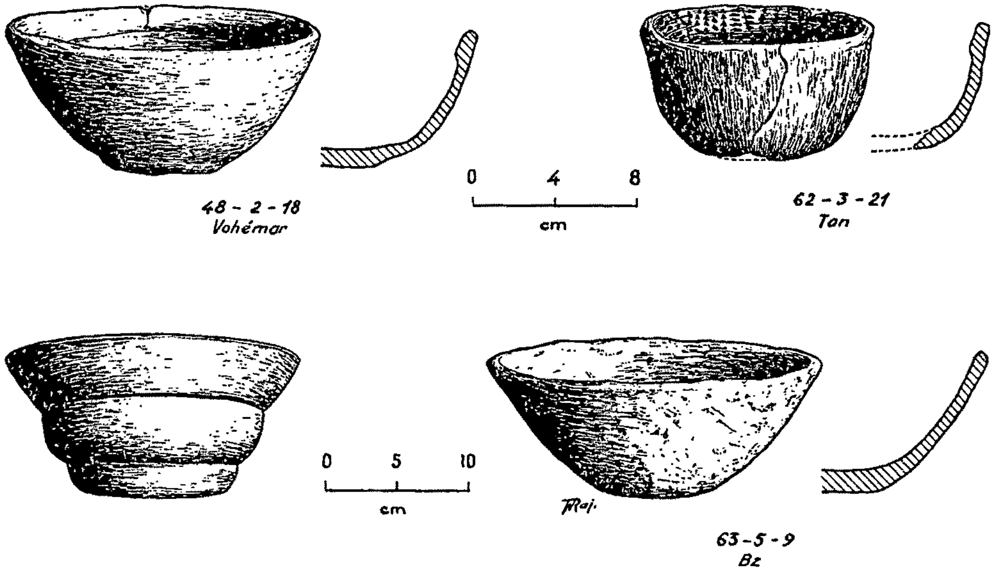

Fig. 5 Bowls from: *a,* Vohémar; *b,* Tanala; *c,* the Vohitrandriana region of Zafimaniry; *d,* the Mandialaza region, collected among the Bezanozano.

SUMMARY

In summary, among the traditional pottery still existing in Madagascar, footed plates and vases with vertical sides belong to the most ancient forms. On the contrary, bowls without a doubt were copied from Islamic, Chinese, and even European models. These three types are now becoming completely obsolete in the remaining areas where they survive (bowls) or have completely disappeared (footed plates and vases with vertical sides).

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Borneo's Prehistoric "Turtle-Ware" and "Phallic-Top" Lidded Pots

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TOM HARRISSON

A RATHER curious form of prehistoric earthenware with a pattern perhaps, but not certainly, impressed from the subdermal flat bones of certain turtles has been described (Harrisson and Medway 1962, Harrisson 1966). "Turtle-ware" has so far been recorded only in Borneo from the stone and bronze iron-age context of Tapadong Cave, well inland on the northeast side of Sabah, North Borneo; from the great Gomantan Cave complex close to Sandakan on the northerly tip of the island; and from Lobang Angus, a strictly "stone-age cave" at Niah, 300 mi. down the coast to the southwest in Sarawak (see also Harrisson 1965: Plate XVI).

In the earlier reports, I suggested that this wide and partly inland diffusion for such a rare yet distinct ware implied initial and perhaps regular maritime trade contacts for earthenware well back into the Stone Age. I specifically mentioned Celebes. New correlated evidence enables us to go a little further. Eine Moore, who has been working on the mass of excavated earthenware from Tapadong (Moore 1966), has drawn my attention to an earthenware lid now reconstructed and readily identifiable from Tapadong Cave, the original type site of the "turtle-ware" (Fig. 1). It was previously overlooked. The particulars are as follows:

1. Two sherds, both from Trench A5, 0–6 in.; TD. 5, Tapadong; excavated by Barbara Harrisson, 1964.
   Form: rounded with simple blunt rim and a thick, solid knob rounded at the top.
   Size: Height, 4.4 in.; approximate diameter, 6 in.
   Body: coarse grayware, tempered with crushed, fired clay; outer surface with core turns reddish towards rim.
   Finish: Outer surface finished with turtle shell impression.
   (E.M. 11.4.67)
2. Clay of body: notably thick, up to 9 mm.
   Knob top: 3.5 mm high, 24 mm across, fairly evenly cylindrical but irregularly "flat" on top; "wavy" design is carried on along sides and weakly on the top. (This

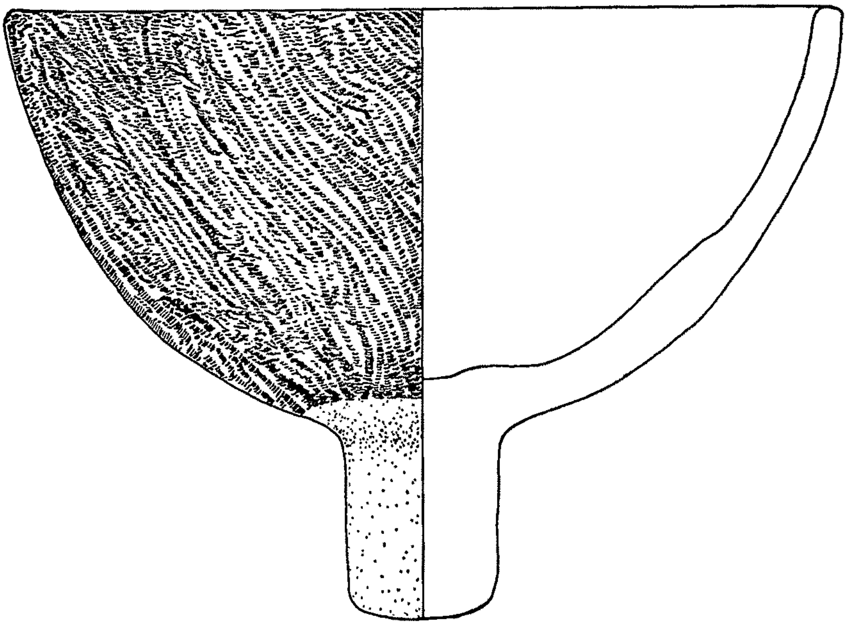

Fig. 1 Reconstruction drawing of "phallic-topped" earthenware pot lid excavated from Tapadong Cave, Sabah; Height, 4 2/5 in. (natural size).

treatment is very close to that of some "phallic tops" from Sung open sites, ca. A.D. 1200 in the Sarawak River delta: see below).

Design density: closely applied to the surface, except at the base of the "phallic top," perhaps because of further finger moulding here to strengthen the joint with the main lid body?

Firing: soot and smoke heavy inside—probably from firing but possibly from secondary funerary practices in the cave (cf. my general paper on the site, 1964, and also my "Excavation of a Tapadong Cave", 1965*a*).

The design (see Plate I) is deliberately somewhat emphasized on the drawing (see Fig. 1) to bring out the main quality. This design is not typical of the "turtle-ware" found at the same spot (Tapadong Cave) described earlier; nor is it suggestive of the use of dermal bone. In this case, the possibility of impressed bark as a "pattern source" (also discussed earlier) might well be borne in mind.

But this pot surely belongs to the same general class of unusual—and almost certainly imported—wares for which I have postulated "turtle-ware" as a preliminary term ("wavy pattern" would be a weaker if wiser alternative). What makes this piece of particular importance and interest, at this stage, is the lid with knob-top. It must be the carefully shaped cover of a storage vessel in two parts.

There is an immediate, almost "obvious," parallel between this Tapadong top and what W.G. Solheim II has described as "phallic handled lids" in his major paper on the prehistoric earthenwares of our open sites in the Sarawak River delta, a further 300 mi. south-

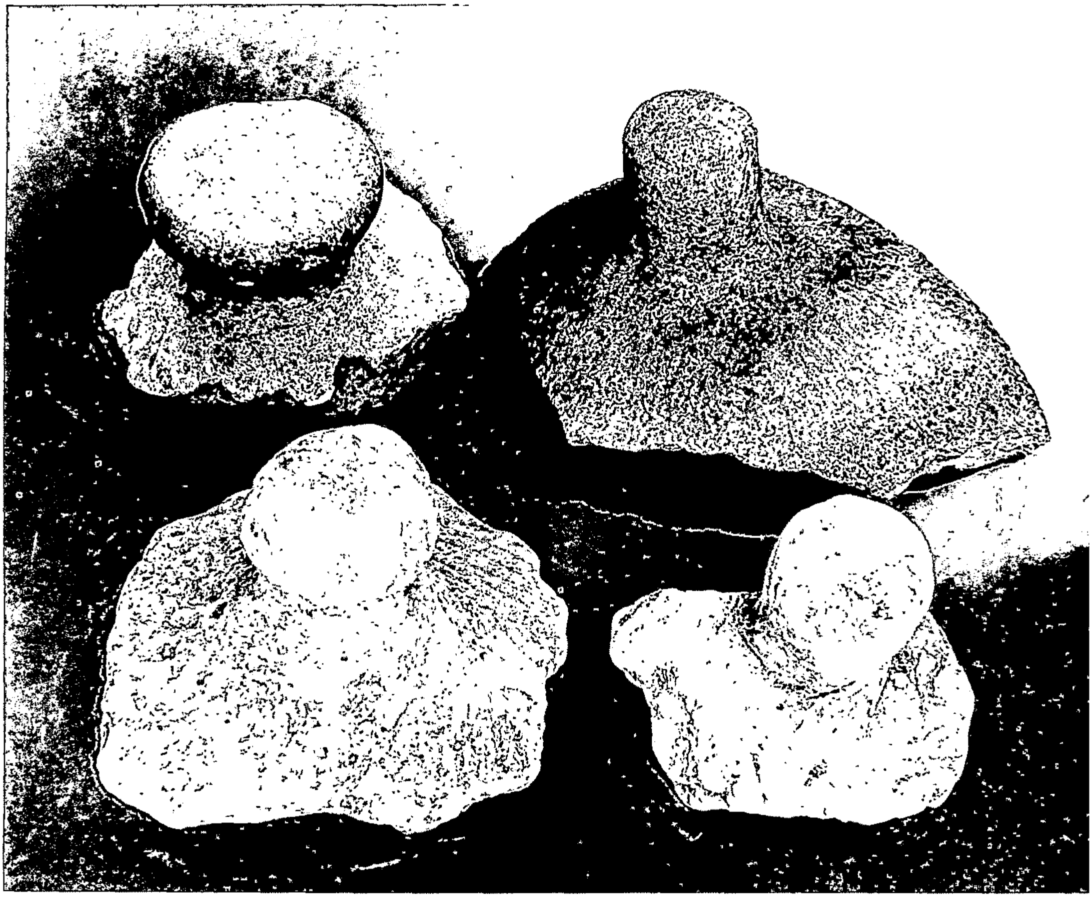

Plate I Four "phallic-tops" from West Borneo sites: *a,* from upper Sarawak River, Semadang football field, in association with later import stonewares; *b,* the Tapadong Cave example (cf. Fig. 1); *c,d,* from W. G. Solheim's coastal headland T'ang site in the Sarawak River delta.

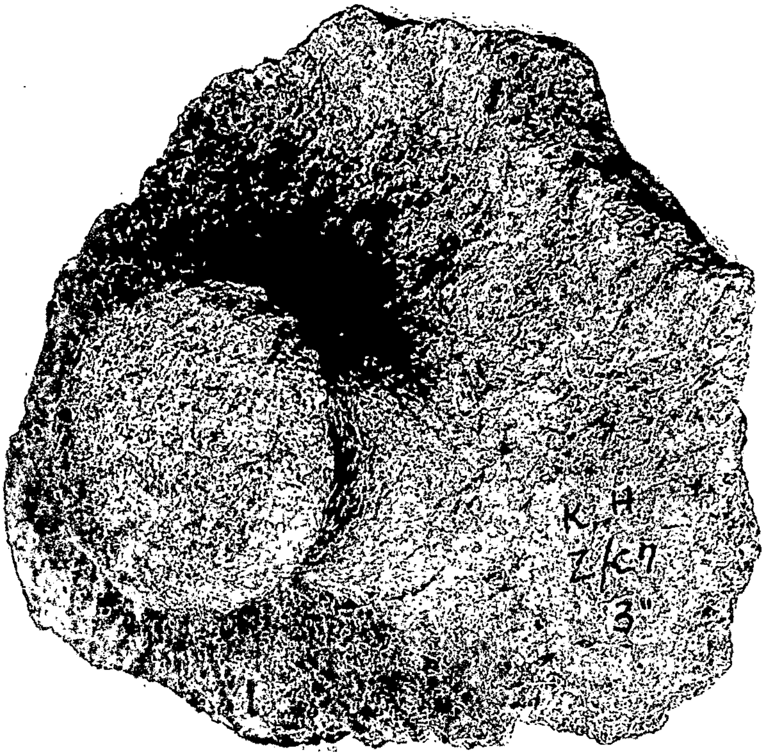

Plate II The only knobbed-lid so far known from the Niah Cave excavations, 1954–1967; from the Painted Cave, trench Z/C7 at 3 in. (cf. text).

west down the coast from Niah and 600 mi. from Tapadong (Solheim 1965: particularly 17, 28, 48–50; cf. Fig. 14 and Plate X).

Since Solheim's 1959 study of the delta earthenware, completely excavated by the Sarawak Museum at an open headland, Tanjong Kubor, in 1955 (for background see T. and B. Harrisson 1957), much further work has been done in the delta. Particularly, during 1966, I in conjunction with S.J. O'Connor, of Cornell University, made an extensive analysis of phallic lids from *other* T'ang and Sung open sites in the delta, including new material excavated during that season. This includes a fresh comparison with the type established by Solheim for Tanjong Kubor (which dates to the T'ang Dynasty and is one of the earliest sites in this rich delta *entrepot* pattern). The new study, in conjunction with Solheim's basic paper, clearly proves that the phallic lids belong to a deeply established and only slightly changing Borneo craft-style whose external relationships possibly extend even to the phallic usages on funerary earthenwares in pre-T'ang China (as suggested on the spot by Te-k'un Cheng, of Cambridge University, who visited us in the delta field in August 1966). O'Connor and I will discuss this aspect further in a monograph we are now preparing.

What is immediately clear from comparing the Tapadong Cave "turtle-ware" lid top with the large series available from the Tanjong Kubor and other open sites in the far separated Sarawak River delta, is that all belong to the same general tradition and approach, although indeed at the opposite ends of the scale. If one ignored the pattern as such, then the shape, finish, and particularly the treatment of the Tapadong Cave "phallic top" can be closely matched in style and "feel" from Sarawak River examples excavated in sites to which this earthenware can only have been brought in bulk between A.D. 650 and A.D. 1400—at either end of these terminal extremes.

A series of *similar* (but not wavy-patterned) phallic tops have recently been disclosed while clearing a football field at a Land Dayak long-house well up in the headwaters of the Sarawak River, far beyond the southwesterly tidal limits, further extending the inland range down south (see Plate II). This last is evidently an ancient longhouse site, with associated later Chinese domestic stoneware and porcelain crockery as well as glass beads. These particular phallic-tops are nearly always quite *flat* on top, but like the Tapadong one have the interesting feature of a design carried on *over* the top—sometimes it is incised separately from the rest of the body pattern, which is ordinarily done with a carved paddle.

Moreover, in several *caves* still further up in the Sarawak River headwaters, our excavations since 1947 have produced other phallic-top lids, quite clearly in the same general tradition—for instance, from Gua Sekunyit near Batu Kawa (excavated 1952 and 1966); Lobang Angin at Bau (1950); and Gua Sireh near Tarat (1959–1961). All this makes it clear that some of these earthenwares had great persistence, out of the Stone Age or through the full impact of iron and over a wide area too.

Finally, for the present phallic examples, we have a single such topped lid from Kain Hitam, the splendid Painted Cave at Niah (see Harrisson 1959: color plate) at trench Z/C7.3 in., which I excavated. Here the association is vivid with imported T'ang stonewares, glass beads, and other fully "iron-age" insignia. This lid has a flat top to the knob and is in general quite close to the Tapadong Cave prototype. It also has heavy sooting on the inside, which is finished more flat, less concave, than the Tapadong one. It is remarkable that this is the only such lid so far detected from the hundreds of thousands of earthenware sherds in this and other caves at Niah, including the Great Cave and Lobang Angus, where "turtle-ware" is present. It is most unlikely that it is an indigenous, locally made pot in this context.

In my general discussion of Tapadong (1964), I showed that it was primarily a late stone-age and early metal-age cave. The finds there included a single very unusual piece of thin iron, as well as the first direct proof of bronze tools excavated *in situ* in Borneo. There are *no* Chinese import stonewares and *no* glass beads: invariable markers of the true iron "explorion of impact."

Therefore, perhaps this "turtle-ware" may be directly related to the knob-top lids with roughly "phallic" symbolism; and very possibly, the two ideas—the wavy design and the "phallic" symbol—met and overlapped in the north of this great island. Of fundamental significance, I think, is the indication of a widespread distribution for these correlated styles between the ending of the Stone Age and the early phases of iron in Borneo. Also, the clear implication that even then earthenware was being traded, both before and along with the stoneware from China that came flooding in with the full impact of iron, but are not once repeated at Tapadong Cave in the northeast (though they occur in *other* Sabah caves of later date). This evident maritime spread of quite simple earthenware objects or of the craft of making them along the coast and far up the rivers, requires further analysis. The matter will be pursued in the monograph mentioned earlier.

Meanwhile, the generalization is given dramatic effect when we examine the pottery being made today by the Bajaus—now 100 percent Moslem—around Kota Belud on the west side of Sabah. They are hand-shaped "phallic-pot lids" in which the clay differs markedly, but the result sometimes still resembles closely those from the Sarawak River delta, the upper Sarawak sites, and the Tapadong specimen from Sabah. For those who wish to pursue that angle prior to fuller publication, reference may be made to the discussion of these *modern* Bajau phallic tops in papers by the late Ivor H.N. Evans (1955) and John Alman, both describing and illustrating contemporary Bajau pot-making in northwest Sabah, roughly halfway between Tapadong and Niah. This relationship with the living "Bajaus" is not accidental. I hope later to show that their role in this and other "native trade" activities spans a much longer time-and-space period in Indo-Malaysia—and in a considerably more consistent way—than has generally been supposed (e.g., by D.E. Sopher in his long study "The Sea Nomads" (1965).

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New Analyses of Excavated Prehistoric Glass from Borneo

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BACKGROUND AND PROBLEMS

IN an earlier paper I have argued, from the basis of glass-bead analyses in various parts of the Malaysia region, that there are at least two probable, or at least possible, ancient overseas sources of glass that was brought to Borneo and elsewhere—one from the west and possibly another from the north or northwest (Harrisson 1964: 50). Further than those two possibilities, all is obscure. The situation, as Alastair Lamb has further pointed out, remains complicated (Lamb 1965: 30). However, it is painfully clear that we cannot accept eye judgments on the content—and therefore the original composition and source—of the monochrome beads, which overwhelmingly outnumber all other sorts in Southeast Asia.

Yet, such eye judgments continue to be made, even in scholarly circles, as I have pointed out previously (Harrisson 1965: 153). In that article, I criticized an archaeologist who interestingly related beads to radiocarbon dates; but while accepting this objective scientific set of criteria for measuring the time scale, he failed to provide a single bead analysis for composition-manufacture at the same level of value—relying instead on subjective eye judgment to classify his properly dated beads as "Indian," etc. Some innocent mistakes have been serious, even laughable, such as the acceptance of Grecian glass from a neolithic site in Malaya. Nevertheless, though they are eventually discredited, new books on Malaysia and elsewhere continue to use the magic of such "culture diffusion."

On the other hand, we cannot expect scientific analysis to solve our source questions simply, any more than carbon dating alone can answer anything significant in archaeological stratification. Indeed, the application of regular, rigid, complete analytical methods to prehistoric glasses may at first produce more headaches than hoorays, in the hodge-podge of material cultures which, since Late Stone Age, ricocheted in, out, over, and around Malaysia, Indonesia, Indochina and the Philippines. Only when we have much data, firmly tied to glass with known and demonstrable time and place associations, can we expect to get clear answers. If, meanwhile, we do not decide answers in advance and try instead to test points

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objectively, there is a better chance of keeping the resulting returns of factual data within bounds and avoiding chaos.

Here it is salutary to quote a recent reviewer, R. Organ (1965), commenting on Dr. Earle Caley's new study "Orchalicum and Related Ancient Alloys" (American Numismatic Society, New York, 1965). He writes (my italics):

> Chemical analysis having any pretence to precision makes use of considerable manpower and in the museum laboratory the effort cannot often be seen to be profitable compared with expenditure of comparable manpower directly on the cleaning or conservation of antiquities. Nevertheless, scientist and curator alike, we all have the instinctive feeling that analysis ought to be useful in solving problems of provenance. We therefore feel deflated when on comparing a new, hardly acquired analysis with figures reported from other sources we find that the comparison is in fact *inconclusive*. Responsibility for our deflation may rest with ourselves, because we have been insufficiently precise in our analysis or in our sampling. On the other hand, *the comparison analyses themselves may be faulty*, either because they have been inaccurate or because they have been made on objects of uncertain origin.

This paper is a minor exercise in shading between the lines sketched but left unfilled by the initial Malaysia studies mentioned above, but from one specific angle (to be described below).

In this instance, deep thanks are owing to Roy Perrot, H. Brill, and the staff at Corning Glass Museum, New York, for much difficult work on the glass objects under discussion. I have benefitted from two visits to and lengthy discussions—before and after the tests—at Corning in company of S. J. O'Connor of Cornell University, who shares an Asian interest in this subject (cf. O'Connor 1965: 562).

I will present a list of the sample materials, followed by the analyses of them as reported from Corning. The sample was chosen by me (on subjective eye-criteria) to test various existing but generally still rather vague ideas by objective means (see "Descriptions of Specimens" below). I should add that these analyses by Perrot and Brill are more detailed and complete than any data previously published for Southeast Asia. They cover a range of relatively rare but potentially significant trace elements and compounds, as well as the better-known glass materials. We have here not only barium but antimony, cobalt, stronthium, zirconium, silver, zinc, boron, bismuth, and vinadium, rarely or never before reported in excavated or other glass for this part of the world. Indeed, this very detail has raised some methodological and other points that involve further study—in part for reasons indicated in R. Organ's review cited above. With this necessary qualification, the sample is offered with some confidence.

PURPOSE OF THIS SPECIAL SAMPLE

It seemed to me we were in danger of getting too many analyses over too wide a spectrum of glass problems; and sometimes the analyses were executed rather hastily or incompletely —without strict regard to good laboratory technique. To avoid data diffusion and subsequent confusion, the material now under review was subject to three selective criteria—designed to restrict the problems and focus on one aspect as fully as possible. The plan was to pursue this kind of approach further in the future, rather than to stab at this still huge problem from all angles at once.

The three selective criteria employed were:

1. All but two (A. 1 and A. 2) of the pieces sampled were obtained in West Borneo by orderly archaeological excavation: that is, we knew where, how, and when each was found, and in what prehistorical associations. Thus, we excluded one of the main variables that exists when glass is picked up in random finds or out of unclassified collections.
2. The pieces sampled with one exception (A. 12) cover only a narrow range of the glass available for study, selected as being *optically alike* or closely similar, from monochrome blue or green glass of a very common "type" in the area. No other colors or combinations were included. This restricts the variables so especially due to coloring matter and also provides a check test for visual criteria over a rather narrow field.
3. The whole sample was tested under the rigid standards of the world's foremost Glass Museum and Laboratory, Corning, New York.

DESCRIPTION OF SPECIMENS

A. *Beads*

A.1 A dark blue bead in use in Kelabit uplands and regarded there as ancient. Included in series to test specimens from the same source—and the same necklace—separately and previously tested in Malaya (Harrisson 1964).

A.2 A blue bead slightly darker than A.1. Comparison of these two should indicate the range of variation between individual beads of one visual "kind" that is certainly high, but of course not random. Comparison with the previous tests should indicate the scale of variation of the different laboratory methods.

A.3 An opaque blue bead that looks exactly like A.1; chosen as one of a long series by three independent observers, without my (more knowledgeable?) intervention. This bead was excavated at Sungei Jaong, Sarawak River delta in 1957 in a China Trade site that dates ca. A.D. 800 to 1000; however, it was almost certainly finished before A.D. 950 (report in press).

A.4 A blue bead, nearly an eye-match for A.3, chosen in the same way from the same site. It will be seen that these two are *fundamentally* different from A.1 and A.2 in lead (PbO), sodium (K_2O) content, etc.

A.5 A pale green bead from the same Jaong site as A.3 and A.4—associated directly with both.

A.6 A bead chosen in exactly the same way and for the same reason as A.3, but from Tanjong Kubor, a headland cemetery at the mouth of the Sarawak River delta excavated in 1955; dated between A.D. 700 and 850 (cf. Tom and Barbara Harrisson 1967 and Wilhelm G. Solheim II 1965).

A.7 A bead from the same Kubor site as A.6, chosen for same reason as A.4.

A.8 A pale green rather than blue bead found with A.6 and A.7 at Kubor (cf. A.5 from Jaong).

A.9 The blue coloring of this bead slightly mottled (rare), but otherwise it is visually close to A.1 and A.2. It is the nearest possible match to the preceding series from Niah Cave, west mouth excavation, at a cave site that can be dated well before A.D. 1000.

A.10 Visually this bead is like A.1, from Kota Batu, Brunei, at 36 in. in horizon; provisionally dated ca. A.D. 1400 (see Tom and Barbara Harrisson 1956).

A.11 Visually, a bead like A.2, but smaller; nearest available eye match from the Painted Cave at Niah; can be dated before A.D. 1100.

A.12 An orange colored tubular bead from Painted Cave (see A.11), unlike rest of series and of a kind still highly valued by upland Kelabits who call it *manik tolang*; similar specimens discussed previously (Harrisson 1964).

B. *Vessel Pieces*

These vessel fragments are rare in West Borneo excavations, unlike West Malaya and the Isthmus of Kra. Nothing similar to Lamb's "punty caps" have been found among many thousands of glass specimens here. The 4 pieces tested were chosen from the limited available material because they appeared to be of glass that resembled broadly the blue or green bead glass of series A.1-A.11 above.

B.1 Fragment from Jaong (see A.3); green with small black spots.

B.2 Flask neck from Kota Batu (see A.10); horizon not exactly dateable, but site finished ca. A.D. 1550.

B.3 Part of glass dish from Kota Batu.

B.4 Another glass dish fragment from Kota Batu; note very high *lead* figure.

C. *Bangles*

These bangles have been the subject of previous discussion by Inez de Beauclair and me (1962). The following series were selected to cover a narrow visual range and relate to the previous remarks and also to cover glass that looks very similar to that used for the beads of series A.1-A.11, above.

C.1 Green bangle from Jaong; of glass type described in A.3.

C.2 Blue bangle from Jaong; of glass type described in A.3.

C.3 Green bangle from Kubor (see A.6); "like" C.1.

C.4 Green bangle from Kota Batu (see A.10); in deep, probably pre-A.D. 1000, level; "like" C.1.

C.5 Green bangle exactly like C.1; found clearing Bintulu airfield with other glass and gold (pre-A.D. 1300).

D-E. *Two Unique Pieces*

D. Piece from a nearly whole fine deep blue vessel found in a T'ang "Cemetery" at Bako, Sarawak River, with John Pope, director of the Freer Gallery, Washington, D.C., in 1957.

E. Piece from a tiny pale green elephant made of glass, excavated at Bukit Maras, Sarawak River delta, and associated loosely with a stone Buddha, an elephant tile in sandstone, and a Tantric Buddhist shrine with golden elephant symbols, all dateable ca. A.D. 1200 or earlier (full report on this and other delta sites in press by S. J. O'Connor and me).

RESULTS

A: BLUE OR GREEN GLASS BEADS*

	A.1	A.2	A.3	A.4	A.5	A.6
	503	504	505	506	507	508
Na_2O	13–16	7–10	8–11	8–11	9–12	12–15
CaO	2.0	3.0	3.0	5.0	8.0	5
K_2O	13.	5.	0.5	0.7	0.6	2.0
MgO	0.2	0.4	2.0	3.0	4.0	4.0
Al_2O_3	0.1	0.1	0.8	1.0	0.8	0.9
Fe_2O_3	0.4	0.4	0.7	0.5	1.1	0.6
TiO_2	....	....	0.08	0.07	0.10	0.03
Sb_2O_5	....	....	....	....	....	....
MnO	.04	....	.16	0.5	1.2	.02
CuO	0.5	0.8	0.07	0.5	....	0.01
CoO	....	....	....	....	....	....
SnO_2	....	....	0.12	....	....	....
Ag_2O	....	....	....	....	......	....
PbO	15.25	20–30	0.1	....	....	....
BaO	....	....	....	....	....	....
SrO	0.08	0.08	0.05	0.06	0.06	0.08
Li_2O	....	....	....	....	....	0.01
Rb_2O	....	....	....	....	....	....
B_2O_3	....	....	....	....	....	....
V_2O_5	....	....	....	....	....	....
Cr_2O_3	....	....	....	....	0.02	....
NiO	....	....	....	....	0.01	....
ZnO	....	....	....	....	....	....
ZrO	....	....	....	....	....	....
Bi_2O_3	....	0.001	....	....	....	....

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* The first number in each column is T.H. reference, the second, the Corning Glass Museum code. The SiO_2 (Silica) total is 100—table results, not shown.

	A.7	A.8	A.9	A.10	A.11	A.12
	509	510	511	512	513	514
Na_2O	15–18	12–15	10–13	8–11	25–30	15–18
CaO	7	6	4	20–25	3	6.0
K_2O	5.0	3.0	3.0	10.0	5.0	0.3
MgO	5.0	4.0	3.0	3.0	0.2	0.8
Al_2O_3	2.0	1.5	1.2	5.0	8.0	10.0
Fe_2O_3	1.8	1.5	0.7	0.3	1.7	1.0
TiO_2	0.07	0.08	0.06	0.10	0.25	0.25
Sb_2O_5	....	....	....	....	....	0.35
MnO	0.3	0.82	1.2	1.0	....	.04
CuO	0.1	0.02	0.5	0.5	0.01	5.0
CoO	0.08	....	....	....	....	....

	A.7	A.8	A.9	A.10	A.11	A.12
SnO_2	....	....	....	0.12	0.07	0.18
Ag_2O	....	....	....	....	....	0.005
PbO	....	0.04	0.02	0.10	0.08	1.0
BaO	0.02	0.02	0.01	....	0.2	0.20
SrO	0.15	0.10	0.07	0.08	0.07	0.20
Li_2O	0.01	0.01	....	0.01	0.02	....
Rb_2O	....	....	....	....	....	....
B_2O_3	0.05	0.07	0.05	....	....	....
V_2O_5	....	....	....	....	0.03	0.03
Cr_2O_3	....	....	....	....	....	....
NiO	....	....	....	....	....	....
ZnO	....	....	....	....	....	....
ZrO_2	....	....	....	....	....	0.5
Bi_2O_3	....	....	....	....	....	....

B: GLASS VESSEL PIECES

	B.1	B.2	B.3	B.4
	515	516	517	518
Na_2O	12–15	9–12	25–30	0.5
CaO	6.0	9.0	15.0	2.0
K_2O	0.2	0.1	10.0	15–20
MgO	4.0	0.7	3.5	....
Al_2O_3	2.0	0.7	1.0	0.2
Fe_2O_3	0.8	0.5	0.7	0.3
TiO_2	0.25	0.07	0.10	....
Sb_2O_5	....	0.05	....	....
MnO	.06	0.3	.08	....
CuO	....	0.05	....	1.5
CoO	....	0.1	....	....
SnO_2	....	....	....	0.02
Ag_2O	....	....	....	0.02
PbO	0.01	0.5	....	40
BaO	....	0.15	1.0	....
SrO	0.10	....	1.0	....
Li_2O	....	....	....	....
Rb_2O	....	....	....	....
B_2O_3	0.03	....	0.08	....
V_2O_5	....	....	....	....
Cr_2O_3	....	....	....	....
NiO	....	....	....	....
ZnO	....	....	....	1.0
ZrO_2	0.05	....	0.07	....
Bi_2O_3	....	....	....	....

C: GLASS BANGLES

	C.1	C.2	C.3	C.4	C.5
	519	520	521	522	523
Na_2O	17–20	15–18	15–18	13–16	13–16
CaO	10	0.5	1.0	0.1	1.3
K_2O	6.0	15–20	10–13	10–13	4.0
MgO	3.0	0.2	1.0	0.2	2.5
Al_2O_3	1.0	4.0	1.0	2.0	1.0
Fe_2O_3	0.6	0.6	0.5	0.8	0.6
TiO_2	0.10	0.10	0.03	0.30	0.07
Sb_2O_5	....	....	....	....	....
MnO	0.3	0.2	0.6	.01	0.82
CuO	2.5	0.5	....	....	....
CoO	....	....	....	....	....
SnO_2	0.03	....	....	....	....
Ag_2O	....	0.010	....	....	....
PbO	0.05	0.02	....	....	0.02
BaO	0.05	0.05	....	0.02	0.02
SrO	0.5	....	....	....	....
Li_2O	....	....	....	....	....
Rb_2O	....	....	....	....	....
B_2O_3	0.02	....	....	....	....
V_2O_5	....	....	....	....	....
Cr_2O_3	....	....	....	....	....
NiO	....	....	....	....	....
ZnO	0.5	....	....	....	....
ZrO	....	0.03	....	0.05	....
Bi_2O_3	....	....	....	....	....

D-E: TWO UNIQUE PIECES

	D.1	E.1
	524	592
Na_2O	14–17	13–16
CaO	1.5	0.2
K_2O	10–13	20–25
MgO	2.5	....
Al_2O_3	0.7	0.8
Fe_2O_3	0.5	0.1
TiO_2	0.05	....
Sb_2O_5	....	0.45
MnO	0.3	....
CuO	0.3	0.3
CoO	....	....
SnO_2	....	....
Ag_2O	....	....
PbO	....	35–40
BaO	0.01	0.17
SrO	....	....
Li_2O	....	....
Rb_2O	....	....
B_2O_3	....	....
V_2O_5	....	....
Cr_2O_3	....	0.01
NiO	....	....
ZnO	....	....
ZrO_2	....	....
Bi_2O_3	....	....

SUMMARY

We still know so little about ancient Asian glass that it would be premature to draw further conclusions from the data, which neither confirm nor disturb the suggestions put forward in earlier papers by Alastair Lamb and me. This study is continuing, and hopefully, the Borneo aspect will be extended considerably with new material excavated on a new control system during 1966, with the continued good will of Corning.

The differences and variations between seemingly similar glasses are apparent. But even if this may seem surprising to ethnologists or artisans who are judging by modern standards, it is not really so. High degrees of variation are to be expected in manufactures using this type of material at those times for the partially "second-class," export-ware market of Borneo.

Fruitful lines for further research in the present direction would seem to include:

1. Further restricted samples—particularly of a visually similar series—analyzed and published to build up sufficient data for fully statistical correlations of variants and initial basic formulas, keeping the issue as simple as possible.

2. Laboratory methods to be of highest quality and to include *every* material present in the glass; trace elements and fractional items may in the end prove to be some of the best clues for distinguishing glasses from different sources.
3. So far as possible, all tested glass to be from:
   a) glass excavated and documented to give at least some time-scale for the earliest or latest possible arrival dates, or both, at the point of find; or
   b) glass found at a proven manufacturing point, a demonstrable workshop where glass was certainly made.

The correlation of 3*a* and 3*b* can alone provide adequate answers to numerous outstanding questions. We need especially parallel data from China after the Han Dynasty (i.e., Seventh century on).

It should be added that there is *no* indication that glass beads and bangles were manufactured in West Borneo—and indeed, there is no good reason why it should have been economically wise to produce glass, any more than it would have been wise to make much less transportable stonewares and porcelains with glazes (and these are much *more* abundant than glass in our excavations).

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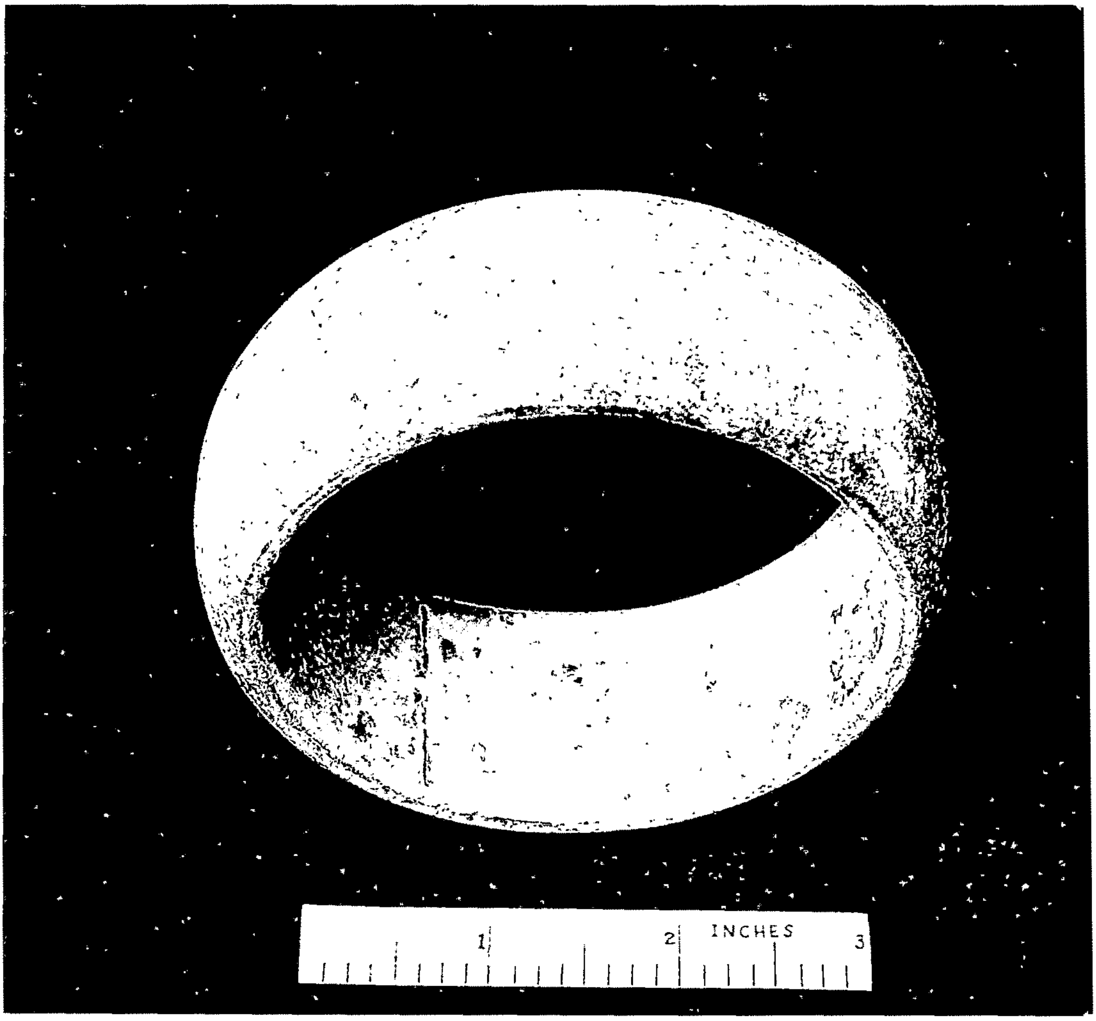

Plate I Bangle of fine porcelainous stoneware found at Kampong Tai'i, Serian District, First Division, Sarawak.

A Rare Ceramic Bangle From Borneo

Received 23 September 1966

TOM HARRISSON

GLASS bangles are a regular feature of prehistoric sites of all sorts in West Borneo and widely in the region, though none have been found in contemporary use (see Harrisson 1962). A great variety of upper- and lower-arm bangles occur in historic times and are richly represented in the Sarawak Museum; they are made of ivory, shell, bone, semi-precious and base metals, beads, rattan, and other vines and were obviously designed for male and female wearers. But the only one known of porcelain (or fine porcelainous stoneware) was located at Kampong Tai'i, Serian District, First Division, Sarawak, in July 1959, by W. G. Solheim II (see Plate I). He kindly gave it to me, and I, in turn, presented it to the Museum on his behalf.

The Tai'i people, Land Dayaks, regarded the bangle as an heirloom and were certain it originated across the Indonesian border in Kalimantan, probably up the Kapuas from Pontianak, around ten generations ago. It is a massive, but not very heavy, upper-arm male bangle, 80 mm internal diameter, 37 mm broad, smooth within, and quite strongly concave outside. The procelain is glazed a finely crazed, dull, buffy white. The "look"—if transposed to a bowl or pot—is "early Ching," perhaps seventeenth century; but it could be considerably earlier. It was probably made in South China, certainly *not* in the archipelago (see below).

From about the advent of Islam in the fifteenth century onward until the advent of better order at sea with the later Europeans in the early nineteenth century, very little was coming to West Borneo direct from the mainland to the north, and almost nothing was arriving directly to the southwest part of what is now Sarawak. It is therefore plausible that the bangle did come over from the other side of the central Bornean watershed.

It is also *possible* (if unlikely) with such anomalous ware that the bangle was made elsewhere, for instance in Holland where so much Chinese ceramic style was copied for reexport to the east. This explanation would be consistent with the origin story, as also with the apparent absence (unless overlooked) of any similar artifacts, such as sherds, in the extensive excavations around the area since 1947 (see *SMJ*). From present evidence, the Chinese and others supplied a wide range of bangles for barter with native Borneans; we have even found a bangle of iron incompletely fired in a crucible at the "Chinese" iron and ceramic site of Sungei Ja'ong, Sarawak River delta, dated ca. A.D. 1000. The Brunei Malays still make bronze bangles and earrings, some elaborate, which have reached the furthest nomadic Punan

Busang of the remote interior. But we have no sign of porcelain bangles in any of the pre-Ching sites; and no rich Ching sites have been found to excavate.

This apparently unique piece for Borneo is therefore put on record:

1. to alert others to look out for sherds or other traces of similar bangles in collections in Borneo and elsewhere;
2. to watch out for similar pieces being worn now, especially over in Kalimantan and in Indonesia;
3. to look for such pieces as European (Dutch, Doulton?) ceramic factory products—perhaps also sent to other Asian countries.

Clearly, it cannot have been unique. Commonsense suggests that this rather specialized product is the survivor of a considerable manufactory to meet a consumer need. Such needs were often also "vogues" inside Borneo. The sorts of bangles preferred varied from group to group—and still do. The current favorites include reworked brass off army ammunition box handles. Special fashions develop locally, and then spill over and out. That may have been the case, quite a long time ago, with the not very "practical" use of porcelain for arm ornaments. Even less practical though, was glass! Yet glass was used over at least six centuries, from T'ang into Ming, in Borneo (Sarawak River, Niah Caves; Brunei) and elsewhere as far as Luzon and Micronesia.

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Archaeological Investigations in Eastern Taiwan

Received 10 January 1967

RICHARD PEARSON*

INTRODUCTION

RECENT advances in the archaeology of Taiwan have taken place primarily on the west coast where prehistoric cultures are clearly related to the cultures of southern mainland China (Chang and Stuiver 1966). This paper purports to update information concerning the east coast of the island through a survey of the literature and to report unpublished surveys and excavations.

Eastern Taiwan, as defined for this report, extends from the southern portion of the Ilan Valley to the southern tip of the island at K'en Ting and O Luan Pi (see map, Fig. 1). From Hualien to Taitung, the area includes both the Pacific coast and the interior rift valley, which is separated from the coast by a range of mountains that vary in height from 1,000 m to the north of Taitung to 2,000 m in the southern portion of the island. The coastline between Taitung and Hualien in places is bordered by a strip of flat land, but it is generally precipitous, with very deep water near the shore. The interior valley varies in width from 8 to 14 km. (Hsieh 1965: 120), and its floor is covered with thick alluvium. Two islands, removed from the coast, Lü Tao (also known as Kashōtō, Green Island, Samasana, or Itanasai) and Lan Yü (known as Kōtōsho, or Botel Tobago) are also included. See Glossary, page 155.

EARLY CONTACTS AND PREVIOUS INVESTIGATIONS

Lan Yü may have been seen by Chinese as early as 1225 (Liu and Wei 1962: 1), according to an early Chinese document known as the *Chü Fan Chih* (Records of various barbarians). Apparently, neither the islands nor the east coast itself ever received the concentrated contacts in the Sung and Ming that were experienced in the Ryukyus to the north. However, Kano illustrated stoneware jars that he attributed possibly to the Ming (Kano 1946: Plate 9); the jars were used by the Ami in the new-ship ceremony. These jars are very similar to specimens from the Atanoshi and Misuku sites of the Ming period on the island of Hateruma in Yaeyama (southern Ryukyus) (Pearson n.d.). Kano believed that the jars reached the Ami by way of the Batan Islands (1946: Plate 9). Settlement of the area by Fukien Chinese did not begin until the nineteenth century, and in the more remote coastline and mountain areas, it can well be said that the Historic period did not begin until the twentieth century.

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Archaeological and ethnographic work began soon after the Japanese received Taiwan by

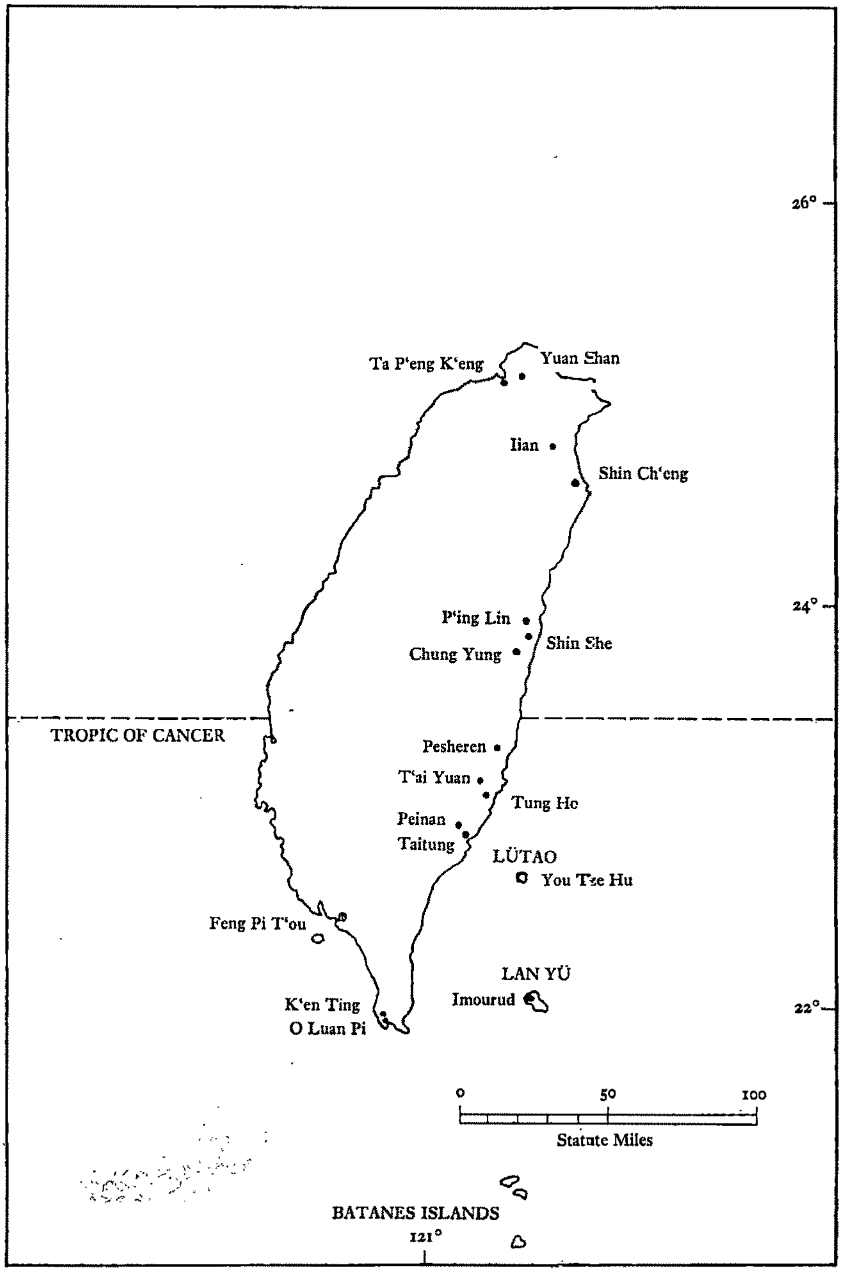


Fig. 1 ● Archaeological sites in Taiwan. (Map from Pearson n d.; forthcoming, fall 1969).

the Treaty of Shimonoseki in 1895. Ryūzō Torii travelled to Lan Yü at the end of the nineteenth century (Torii 1894), and Tadao Kano made a number of excavations on the east coast during the 1920s-1930s (Kano 1930). Kano's research covered many topics and culminated in *Illustrated Ethnography of the Yami* (Kano and Segawa 1956). In Kano's *Studies in the Ethnology and Prehistory of Southeast Asia* (1946, 1952) he included a survey of the sites and artifacts from Lü Tao and Lan Yü, a jar burial found on Lan Yü, cist tombs from the east coast site of Ma Wu, and comparative data from the Babuyan Islands of Camiguin and Dalupiri. Kanaseki and Kokubu excavated a dwelling site near Peinan, near Taitung, in January 1945 (Kanaseki and Kokubu 1957). Members of Academia Sinica surveyed several east-coast sites (Sung and Shih 1953) and discovered new locations (Wu 1963). In the spring of 1963, W.H. Sung of the Department of Archaeology and Anthropology, National Taiwan University, conducted a survey both in the rift valley and along the Pacific Coast and made exploratory excavations at T'ai Yuan and Ch'ang Pin. In the summer of 1963, I conducted a month-long survey of the major sites, making surface collections and salvaging a cist tomb near Shih Shan. In July 1965, under my direction, excavations were carried out at the T'ai Yuan site for two weeks. The artifacts collected by Sung and myself are in the Department of Archaeology and Anthropology of National Taiwan University. Examples of the megaliths from several sites on the east coast are in the collections of the Institute of Ethnology, Academia Sinica, Nankang, along with some archaeological materials collected from Lan Yü after the last war. Some prewar material remains in the Institute of Anthropology, University of Tokyo.

THE MAJOR SITES INVESTIGATED

Only three sites on the east coast have undergone systematic excavation. These are the T'ai Yuan site, the Peinan site, and a site in the hills behind the village of Ch'ang Pin. The details of the 1965 survey and excavation of T'ai Yuan and a summary of Kanaseki and Kokubu's excavation of Peinan are presented in this section.

The T'ai Yuan Site

The T'ai Yuan site is situated in a rugged interior valley of the eastern coastal range. From the Pacific Coast, the land rises gently for more than a kilometer to the base of some low but rugged mountains, which form the eastern wall of the T'ai Yuan Valley. Until several decades ago, the only entrance to the valley was along the bed of the Pei Ch'i (North River). Since this route was very uncertain and dangerous during many times of the year owing to land slides and flooding, a tunnel was cut through the mountains by the Japanese. The valley, which is several kilometers long, is composed of terraces of varying heights along the river and is surrounded by mountains from 500 to 1,000 m high. Above the area of alluvium and boulders deposited by the river, the top soil is black clay loam, which has proved ideal for agricultural development undertaken by the Chinese and local aborigines. Below the black topsoil, which is of varying depth, there is hard, yellow, rocky clay.

The site of T'ai Yuan extends over three terraces, east of the river, and east of the road to Mei Lan, about fifteen minutes' walk from the village of T'ai Yuan. From the river bottom, the site is elevated about 100 m and separated from the river by almost 1 km. The excavation locus on each terrace has been given a number, and each area in which we placed trenches has been given an alphabetic designation; thus, *2a* is an area that we excavated on the second terrace, the lowest terrace being number 1 (see map, Fig. 2).

Locus 1

On the lowest slope, which is dissected by a small stream, there are 9 stone uprights. The first group consists of 3 stones, 2 standing and 1 prone. Originally a fourth stone was present, but it has been removed; although no map was made at the time of its removal, its position is clear from a photograph taken by Pin-hsiung Liu, of the Institute of Ethnology, Academia Sinica. The largest stone (No. 2) has a constricted head with sloping shoulders. The material

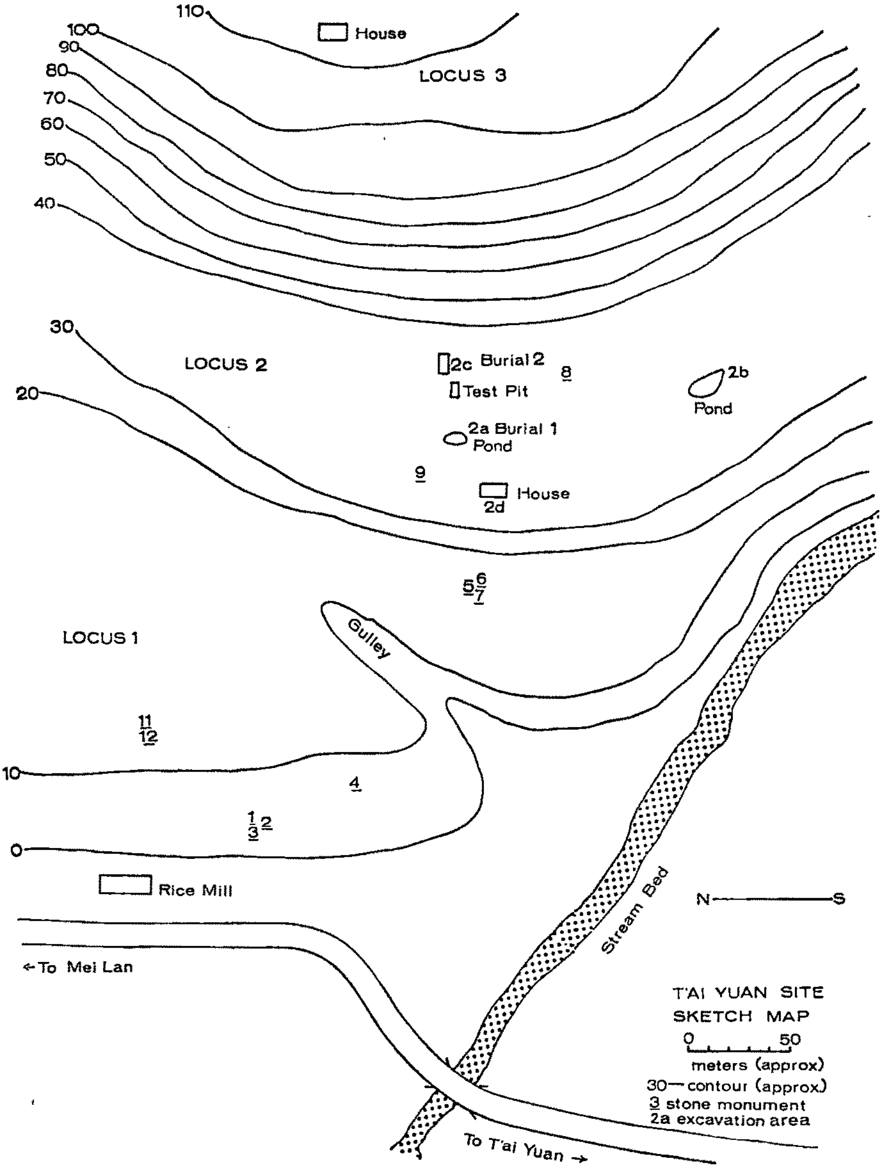


Fig. 2

is coarse basalt. On the south face of the stone is a depression, and on the north surface there is a horizontal groove on the head (Plate I*c,d*). At the base of this stone and each stone at T'ai Yuan believed to be in its original position, a trench was made to determine the shape below ground level. The front or back was only partially excavated in an effort to prevent the stone from falling out of its apparently original position. For the dimensions of some of the uprights from T'ai Yuan, consult Table 1.

TABLE 1

DIMENSIONS OF SELECTED STONE UPRIGHTS FROM T'AI YUAN*

NO.	HEIGHT	WIDTH	MAXIMUM THICKNESS
2	130		40
3	159	58	30
4	154	65	37
5	148	152	29
11	351		33
12	103		40

* Measurements in cm.

To the north of stone No. 2 is a piece of coral limestone conglomerate with a roughly rectangular shaft and a bulbous tip, designated No. 1. On the south surface, where the shaft is enlarged to form the upper portion, there are three shallow holes. The third stone of brown sandstone has now fallen and is fragmented, and there is no way to reconstruct its original shape. A trench 2 m by 1 m between the stones failed to reveal any cultural material other than a few coarse, orange, gritty sherds from immediately below the surface.

Removed by 71 m, 44° south of east, is a large shouldered upright of fine brown sandstone, designated No. 4. The southern, lower surface has been beveled. The two large shouldered stones, Nos. 2 and 4, face in the same general direction—to the north. It should be noted that none of the stones protrudes beyond the black topsoil into the yellow clay; therefore, there is no stratigraphic means of ascertaining when or how the stones were erected.

In a banana field slightly above and to the east of the stones mentioned above, there are 2 more examples, both of white coralline limestone. One is a large column, rectangular in cross section, but with a hooked tip, suggesting that at one time it may have been perforated or grooved as are the uprights at Peinan and Wu He (see below). The other end of the stone has been broken, and two small pieces lie together. The large stone was designated No. 11, and the small, phallus-shaped stone next to it, No. 12.

No white limestone example of the shouldered stones was found. There may have been a purposeful selection of white limestone for the smaller uprights, which are somewhat phallic in shape. In this lowest area of the site (Locus 1), potsherds, stone adzes, and hoes were collected from the surface.

In a slightly higher field, separated from the above remains by a small stream and a gulley, but still included in Locus 1, there were more stone remains and artifacts. Sherds, basalt adzes, and other artifacts were abundant. Beneath several piles of stones set aside by the farmers in the clearing of the field for cultivation, there were 3 large stones, Nos. 5,6, and 7, which seemed to have been undisturbed. The largest is a flat white limestone slab that has been broken *in situ* (Plate I*a*). It gives no clues as to its original function. The slab shape is similar to examples from Tolan, one of which has a pair of round bumps, suggestive of breasts, on the upper portion above ground.

A few sherds and 1 basalt adze were found to the east side of the T'ai Yuan example, which was designated No. 5. A short distance to the west was a mortar of sandstone (not numbered), and further to the west was a broken basalt shouldered stone (No. 6).

Locus 2

Locus 2 is situated in the fields above Locus 1, approximately 15 m higher in elevation, and closer to the east wall of the valley. The most interesting finds and the bulk of the cultural materials came from Locus 2. In two locations, irrigation ponds have recently been dug (since the 1963 survey), and from the fill and exposed banks of these ponds, pottery is abundant. Immediately to the west, below the water ponds, stands a single Ami house; the front yard of the house was the site of another test excavation. On the basis of the surface collections, one area, the pond to the northeast of the house, contained more wheel-made and slipped pottery than any other area that was tested.

On the edge of the northern water pond (Locus 2*a*), a portion of a slate coffin (Burial 1) was visible in the bank. This was excavated by our working down from the top, rather than removing it from the exposed bank. Covering the top of the coffin were 40 to 50 cm of black soil. The coffin was constructed around several boulders and some of the slate slabs had been removed in cultivation. Fragments of a stone needle (or pin) and potsherds, mostly coarse, orange, gritty, with a few coarse gray, were found. Under the slate at the north end of the coffin were the remains of a pot of orange gritty paste with a horizontal handle below the lip (Plate IIj). On the handle there are two parallel rows of elongated punctates or incisions. No bones were found.

Some 20 m to the east of this slate tomb, slightly higher on the slope, a test trench 2m by 1 m was opened and excavated to a depth of about 20 cm. It had to be abandoned because the landowner feared that the cutting of the roots of the orange trees would lower their productivity. About 3 m to the north, in a vacant area, where the landowner had previously encountered several pieces of slate, another trench, 2 m by 1 m, was opened. At the north end of this trench (designated 2*c*), a few fragments of slate were located, and the excavation was extended to a group of slabs, which were uncovered and left *in situ*. The first group of slabs appeared to be in no symmetrical arrangement, and we concluded that a corpse had merely been covered with small rectangular slabs (Burial 2). On top of the slabs were found fragments of a thin, greenish, stone knife and a stone needle Further clearing revealed the remains of at least 1 more coffin, projecting to the east of the first-discovered slabs. The orientation was approximately east-west. The poorly metamorphosed rock, which breaks into thin sheets, was an irridescent pale green schist. A few fragments of gray slate were also found. Kano (1952: 237) states that clay shale was used in the coffins at Ma Wu. The north side of the almost complete coffin was made of one rectangular slab of slate, carefully trimmed, while the east end, notched at the top, was of crumbly schist. The tomb seems to have been dislocated in the middle, since the west side is considerably lower than the east. Fragments of a knife, 2 serpentine adzes, and a rectangular serpentine bar 9 cm long, transversely perforated at both ends, were found, all on top of the slabs, as if they had been placed on top of the coffin. Outside the coffin, about the middle of the south side, near the top of the coffin, a roughly flaked fragment of quartz was found; perhaps it was part of a fire-making kit. Abundant coarse, orange, gritty sherds were found around the coffins, and in their interior, but none was large enough to permit the reconstruction of the original shape of the vessels. No bones were found. The southern portion of the coffin was full of brownish clay that may have gradually seeped in during the torrential rains common to the area.

The final area of Locus 2, *2d,* was the front yard of the Ami house, between the two water ponds and southwest of the coffins. Although the cultural deposit was only 20 to 30 cm deep, a test trench 1 m square produced more material than any other area in the entire site, including large sherds that were unbroken because the area had not been cultivated. At first it was thought that the remains in this excavation were left by the Ami only a few generations ago, but the pottery forms, including the *tou* pedestal foot, are not found in Ami material culture in museum collections. There were 4 fragments of shouldered stones found in Locus 2. None is in its original position. These stones, numbered 7, 8, 9, and 10, are distinguished from the shouldered stones of other loci by having a "nose"—a vertical ridge on the constricted portion (Plate 1*b*). All of these fragments were scattered.

Locus 3

Locus 3, a much higher plateau about 75 m above Locus 2, is reached by a path going straight up the hill between fields of fragrant grass, an important local crop. By the side of this path, there is a small sandstone slab with the shouldered portion broken off, designated No. 13. This terrace is the last flat area before the mountains (that separate the valley from the coast) rise sharply. Pottery, adzes, and fragments of slate are abundant in the fields, and shouldered stones, without the vertical ridge on the constricted portion, have been found here also. At least 2 of these shouldered stones have been cemented into the front wall of the farmer's house near the site. In the farmer's wall there is also a stone disc with a hole in it, designated No. 16. The most distinctive item in Locus 3 is a large stone bowl or tank of coarse sandstone. It is 50 cm high and 70 cm in interior diameter. The thickness of the lip is 12 cm. The bottom is missing and the sides are broken into three pieces (Plate II*i*). It is designated No. 15. On the north side of this bowl, almost under the bottom, is a large rectangular stone, 60 cm long, No. 14, which was not completely excavated. To one side of the bowl, apparently uprooted from another location, was a broken shouldered stone (Plate II*i*).

Artifacts from the T'ai Yuan Site

The most abundant material from the T'ai Yuan site is pottery, the various kinds of which are described below.

Corded Pottery

From the surface collections along the upper edge of Locus 1 and Locus 2 were found 7 sherds of sandy, corded pottery (Plate II*b*). None of these corded sherds occurred in the coffins or test pits. The characteristic form is a flaring rim that also appears in the corded samples from the bottom levels of Feng Pi T'ou and Ta P'eng K'eng, sites on the west coast of Taiwan excavated in 1964 and 1965 (Chang and Stuiver 1966). From these excavations, the corded pottery is regarded as the oldest pottery in Taiwan, having arrived from South China before 2500 B.C. (Chang and Stuiver 1966). In the large sites of the west coast, the corded pottery occurs below the Lung Shan or Yuan Shan strata in scattered locations. This may indicate a more scattered settlement pattern within the village or hamlet. There were no stone artifacts in association with the corded pottery at T'ai Yuan.

The outstanding features of east-coast corded pottery are the sandy textures and faint cord markings on the exterior surface below the characteristic overhanging lip. Judging from the small sample, I would say there are no ring feet, although ring feet were found on pottery recovered from the west-coast sites mentioned above. Small perforations were often noted in the ring feet of west-coast corded ware.

Orange Pottery: Surface Collection

The most abundant pottery is coarse in texture and bright orange in color, occasionally with a reduced inner gray layer. The clay seems to have been previously mixed with sand, since the grit seems overly abundant, and of varying size. It is quite possible that the finished vessels were originally slipped with fine clay, but were fired at such a low temperature that the slip has weathered off. The grit appears to be composed of schist fragments. A general surface collection, which includes most of the sherds found in Locus 1, yielded a variety of forms that are outlined below. Following the outline there is a description of the pottery found at each locus.

TABLE 2

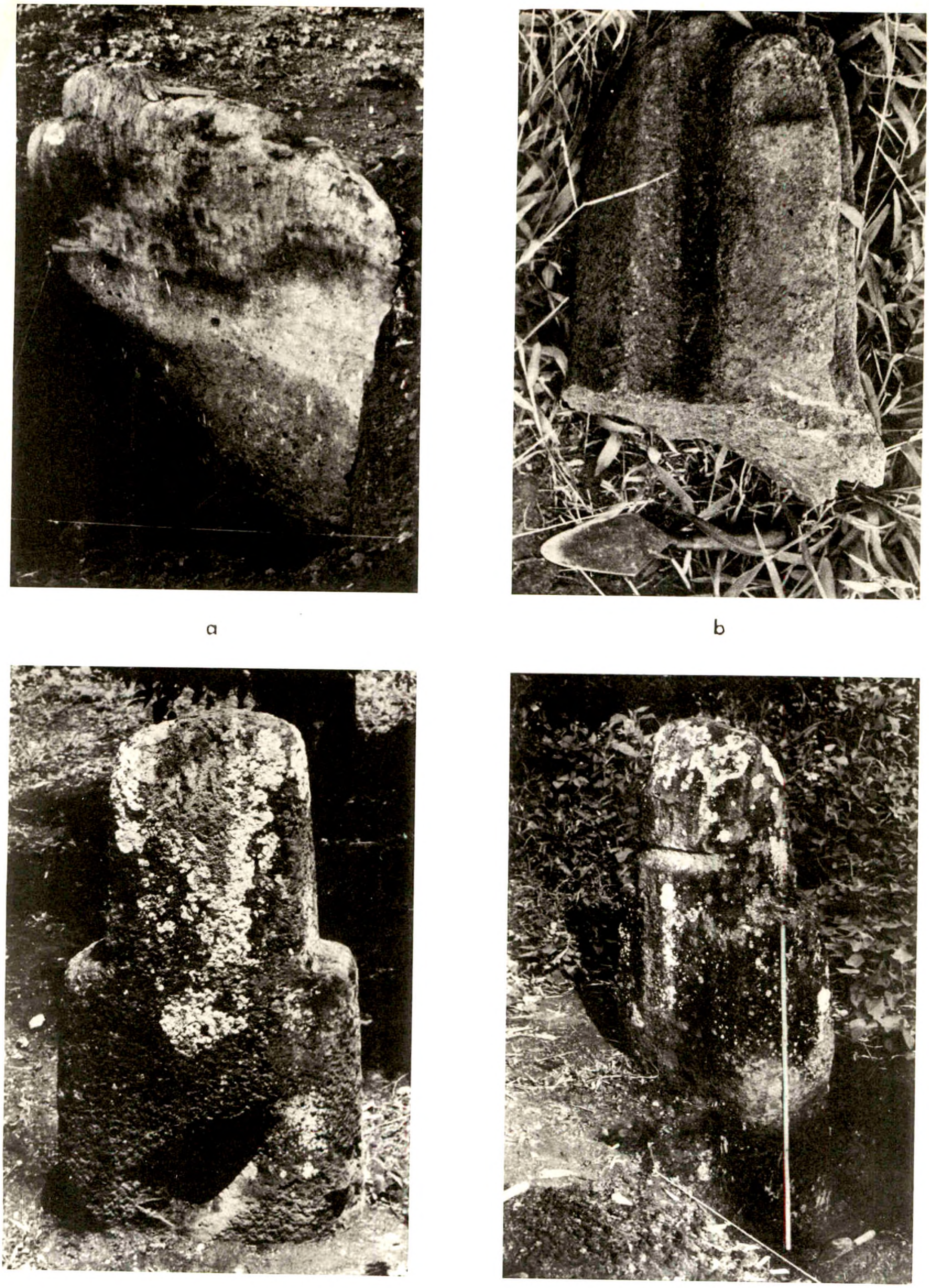
T'AI YUAN SURFACE COLLECTION: FORMS

FORMS		NUMBER FOUND
Spindle whorls		6
Flat perforated disc		1
Flaring mouth of jar		62
High ring feet		35
Low ring feet		2
Handles:	Decorated	5
	Plain, perforated	5
	Plain	81

The term "high" is used to distinguish the usual form from two unusual low examples. The height of most of the ring feet cannot be measured, since they are incomplete, but a few selected complete ones ranged from 3.3 cm to 3.7 cm from the bottom of the foot to the point where the foot meets the bottom of the vessel on the interior of the ring.

Jars. One of the most common forms is a jar with flaring mouth. The total height of such a vessel might be 20 or 30 cm. In height and form these sherds coincide with those from the Lungshanoid strata of Feng Pi T'ou, in spite of the differences in paste. The shape shows little evidence of how the rim is attached; whereas, in Feng Pi T'ou, a tell-tale bulge of clay beneath the sharp bend where the body of the pot begins shows that the rim was appliqued.

Handles. Handles are of the same gritty paste described above. Handles are found plain, decorated, or perforated and decorated (Plate II*a,e*); they appear to have been applied to the vessels both horizontally and vertically. Vertical rim handles extend from the lip to the shoulder, and in some cases bear a vertical perforation near the lip. One would imagine this to be a weak point if the vessel were suspended; however, if the body were encased in a twine bag, the pot could easily be suspended from the roof of the house. Several of these perforated rims have incised designs extending from the length of the handle in a single row down the middle, or in two rows down the outside of the handle. Further decorations include two rows



a

b

c

d

Plate I Stone remains from T‘ai Yuan, Taiwan: *a*, large white limestone, shaped slab (scale on the top is approximately 6 in. long); *b*, broken top of a shouldered stone with ridge on one side; *c*, *d*, shouldered stone (obverse and reverse): scale is 1 m long, total height is 140 cm, or about 4 ft. 6 in.

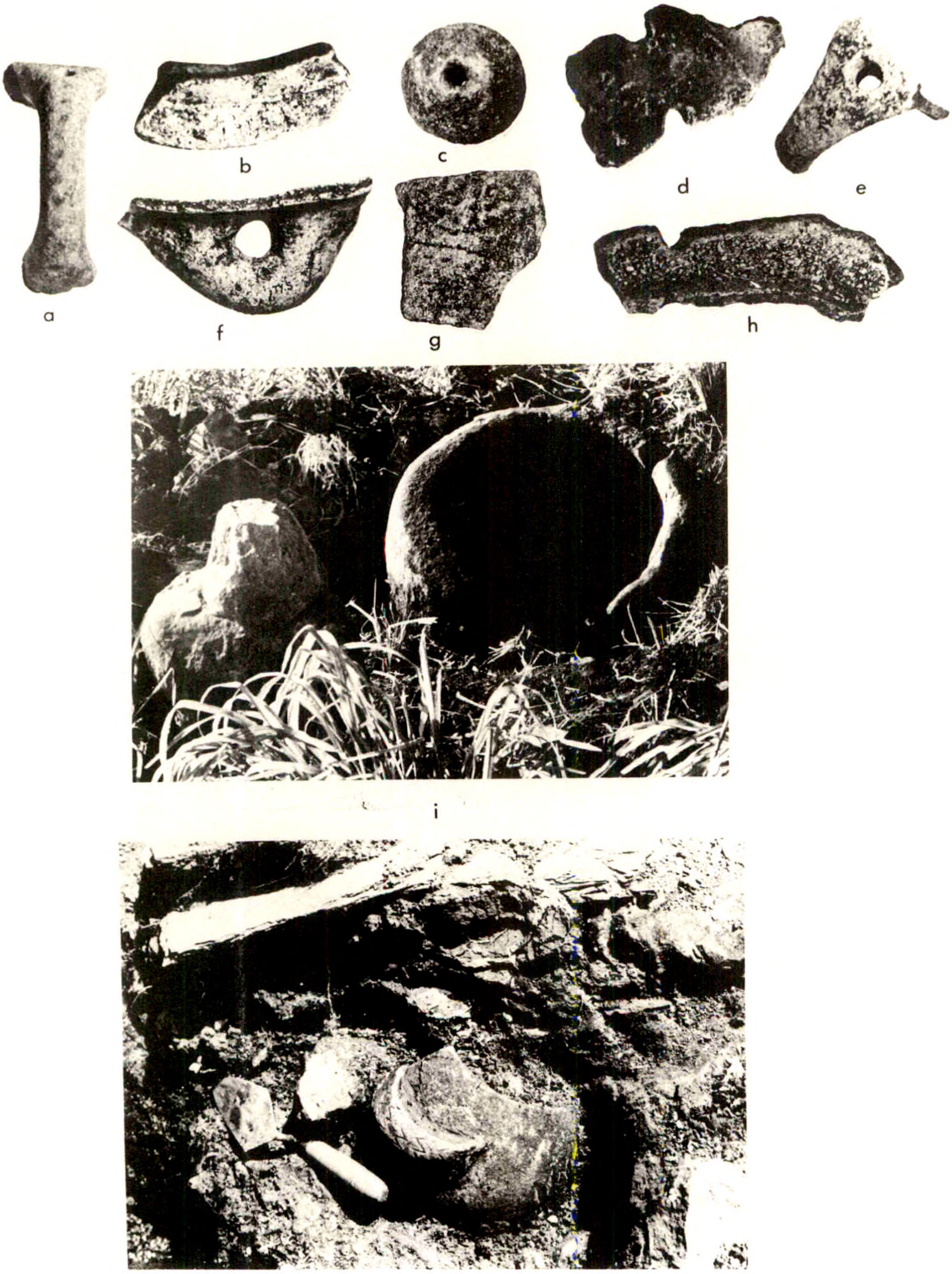


Plate II Artifacts and stone remains from the T‘ai Yuan site, Taiwan: *a,e,f*, pottery handles of T‘ai Yuan ware; *b*, sandy, corded pottery sherd; *c*, clay spindle whorl; *d*, perforated sherd; *g*, punctated sherd; *h*, perforated ring foot sherd; *i*, stone tank and shouldered stone; width of the narrow shoulder portion is 45 cm; *j*, fragmentary vessel of T‘ai Yuan ware in a cist tomb; T‘ai Yuan Site, Taiwan. With the exception of *i*, artifacts a-J are in the collections of the Department of Archaeology and Anthropology, National Taiwan University.

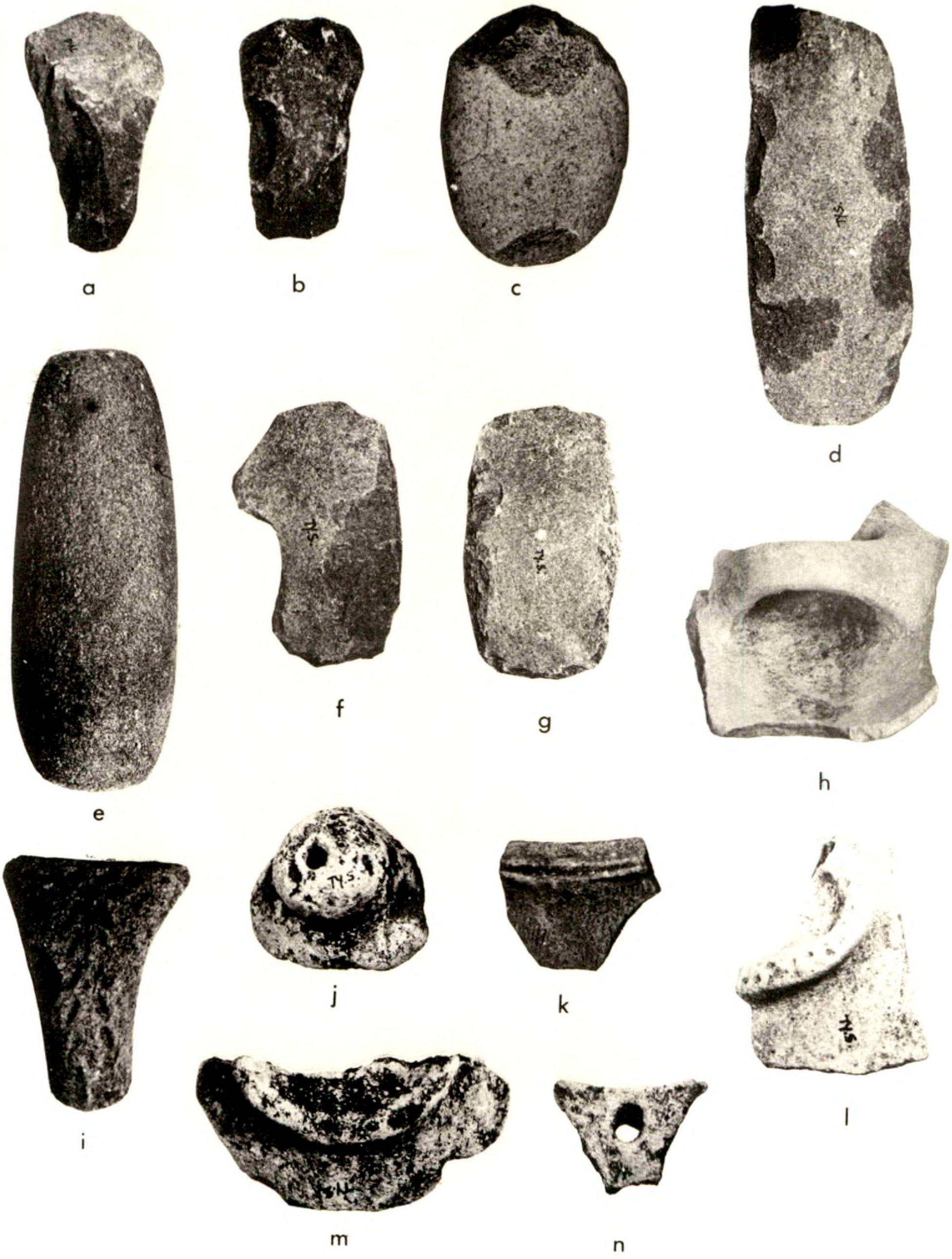


Plate III Artifacts from the T‘ai Yuan site, Taiwan: *a*, *b*, *d*, *f*, *g*, chipped stone hoes of basalt; *c*, rough pebble chopper of green quartzite, *e*, basalt hammer stone; *h*, lid with handle; *i*, *n*, handles of T‘ai Yuan ware; *j*, perforated lug of T‘ai Yuan ware; *k*, sherd of corded ware; *l*, *m*, low ring feet of T‘ai Yuan ware; all artifacts are in the collections of the Department of Archaeology and Anthropology, National Taiwan University.

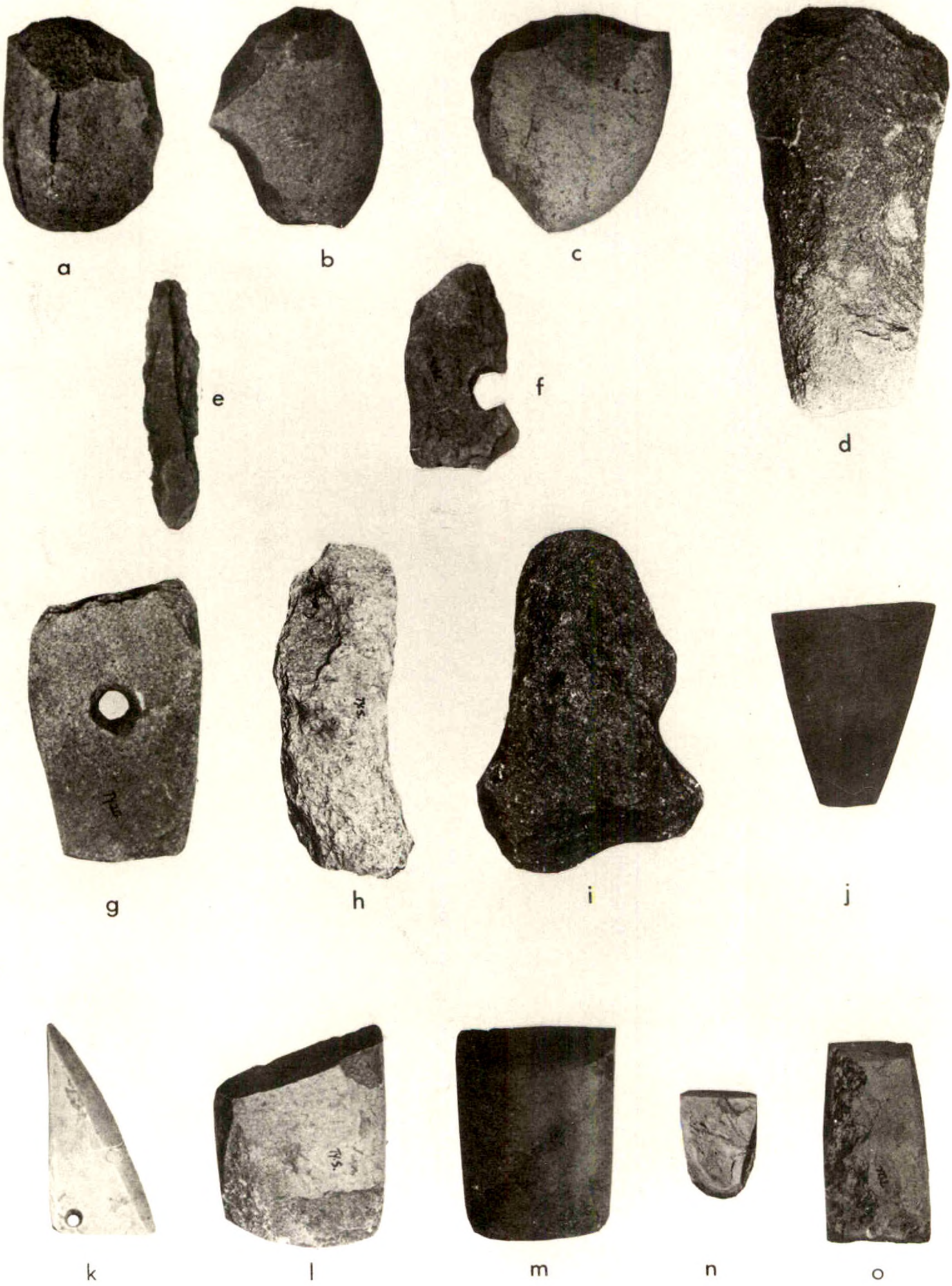


Plate IV Artifacts from K'en Ting and T'ai Yuan, Taiwan: *a, b, c,* quartzite pebble choppers, collected from the surface, K'en Ting site; *d,* basalt hoe, T'ai Yuan site: *e, f,* chipped slate artifacts, T'ai Yuan site; *g, k,* perforated knives, T'ai Yuan site; *h,* chipped knife of schistose stone from the T'ai Yuan site; *i,* chipped maul, possibly of Ami origin. T'ai Yuan; Department of Archaeology and Anthropology, National Taiwan University; *j,* fragment of thin serpentine knife from a cist tomb, T'ai Yuan site; *l, m,* polished rectangular adzes of green quartzite from the T'ai Yuan site; *n, o,* adzes of green serpentine from cist tombs at the T'ai Yuan site. All artifacts are in the collection of the Department of Archaeology and Anthropology, National Taiwan University.

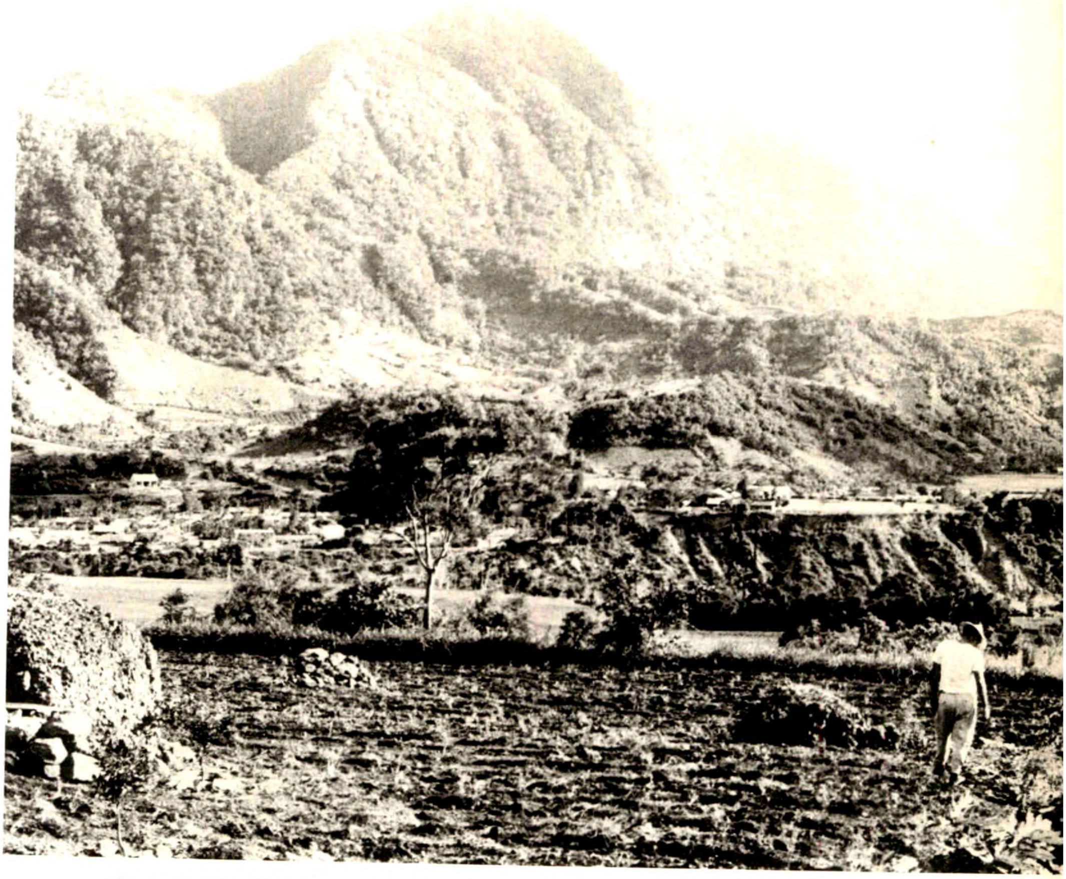


Plate V The T'ai Yuan site, Locus 2, showing the general area and the topography of the T'ai Yuan valley.

of punctates separated by an incised line and successive rows of punctates (Plate III*l*).

Another method of suspension was by attaching the cord to vertically perforated lugs made by applying a lump of clay to the rim. There were 4 such lugs in the surface collection, and 1 body sherd was found with a round perforation. Of the plain handles, most are incomplete; therefore, it is difficult to distinguish handles attached to pots vertically from those applied horizontally. However, since the handles are not the same at both ends, they appear to have been joined to the lip and shoulder vertically. Most are round in cross section.

Ring feet. Ring feet were probably attached to the base of the jar or *kuan* forms, though no complete examples have been found. Plate II*h* shows 1 ring-foot fragment that was found; it has a perforation about 1 cm from the base of the vessel.

There were also 2 very low ring feet found that were less than 1 cm high. One had a double row of dots along the bottom of the foot (Plate III*l,m*). Perhaps the decoration was meant to be seen from below when the vessels were suspended.

Spindle whorls. There were 6 baked clay spindle whorls of coarse, orange, gritty paste found at T'ai Yuan (Plate II*c*). The diameter of the smallest is 2.7 cm, and of the largest, 5 cm. They are all roughly conical in shape, and the bottom of one specimen has been decorated with radiating rows of punctates. The other specimens are completely plain but are also heavily weathered. They may have been originally decorated. The general form is similar to those from the western plain of Taiwan but dissimilar to the broad, flat, disc-shaped form that I collected as an ethnographic specimen from Lan Yü. From T'ai Yuan there is a single, flat, perforated disc of pottery, 4 cm in diameter and 0.7 cm thick that does not seem to have any counterpart from western Taiwan. Also, several aberrant sherds seem to be sections of flat dishes and beakers. One of these sherds has two triangular raised portions, with punctate decorations; a similar piece from Tolan was believed by Kano to bear representations of human faces (1952: 132). A few of the flaring rims of the jars have a harder paste, lighter in color than the majority, rather similar to the buff sherds from Feng Pi T'ou.

Ami Pottery

From the surface collection, 25 sherds were isolated on the basis of their pastes, which is finer than the pastes mentioned above—sandy, rather than gritty. The sherds, which are not highly weathered, show a gray buff surface that has been smoothed over with wet clay. The handles are large, round lugs, two per pot, with vertical perforations. In some cases the handles appear to have been made of a tubular strip of clay, rather than from a perforated lump. Four fragments of the bottom of a perforated pot were also found on the surface. These pieces could be from a double-bottomed steamer or a burial urn with perforated bottom (Plate II*d*); neither of these two possible forms is found on the west coast.

Pottery from Locus 2

Locus 2*a* has the general environs of a small pond. In the pond's east bank we found the outline of a cist coffin, designated Burial 1. From the immediate area around and above the cist coffin were found handle fragments, flaring rims of jars (one of which was decorated with widely spaced shallow punctates), ring feet, including 1 with a perforation, 1 spindle whorl, and 2 sherds from shallow, hemispherical bowls. The average height of the 7 complete ring feet was 2.4 cm. In this same area, 2 rim sherds and several body sherds of a harder, buff-colored, wheel-made, slipped pottery were found.

The largest object found inside Burial 1 is a coarse, gritty, orange sherd whose rim and horizontal handle are decorated with zigzag incisions. There are also the bottom fragments of a large pot of coarse, orange ware that may have been fired while it sat on the ground, since the bottom is coarse gray, while the sides are coarse orange. One corded rim sherd, believed to have been mixed up in the fill, was found in the disturbed area above the tomb.

Locus *2b*, which was excavated to approximately 20 cm, yielded 4 handles, 9 ring feet, 2 mouths of jars, and 1 cylindrical lug that may be the foot of a *ting* tripod (cf. Kanaseki and Kokubu 1957: 56).

Locus *2c* comprises the area around Burials 2 and 3. The sherds were scarce, small, and friable.

Locus *2d* consisted of a cultural layer of black soil extending from the surface to a depth of 20 or 30 cm. One of the rims was decorated with punctates. The collars averaged 3.7 cm in height.

Vertical and horizontal handles are present, and a single concave lid with a horizontal handle extending from the two rims was found. One rim of a shallow, flat-bottomed bowl with a vertically perforated lug on one side was also found. Perhaps it was used for storing seeds or roots, suspended from the rafters of the house. One can see similar utensils made of basketry among some Taiwan aboriginal groups today.

Thin, flat sherds were recovered from the surface of *2d*. Whether they belong to bowls or jars cannot be ascertained from the specimens at hand.

Locus *2e* is the second, southern pond. This area contains the predominantly harder, buff-colored, wheel-marked and often slipped pottery, although coarse, orange, gritty sherds also occur. Among the harder, wheel-marked pottery, there are ring feet and rims of jars and bowls. There is one hard gray sherd bearing very fine impressed lines, made by a roller or twined cord. Another aberrant sherd of coarse, orange, gritty paste has incised straight lines.

Stone Artifacts

Stone artifacts from the cist coffins. The most abundant stone artifacts are thin, greenish slate knives, with perforations or notches for attachment (Plate IV*j*). The fact that the knives are usually only 1 or 2 mm thick compels one to question whether they ever had practical functions. In the dislocated section of Burial 2, a fragment of a dark gray slate knife was found that has polished and beveled edges; it may have been used for cutting rice. Kanaseki and Kokubu argue that the harvesting of millet involves the plucking of the entire stock, since the stem has no use, while the harvesting of rice involves cutting the ear from the stem to save the stem for further use (1957: 61, 62). Thus, they say the small knife indicates rice agriculture.

Another knife fragment, of green slate, had a serrated edge. Near the bottom of Burial 3, a roughly chipped lump of quartz was found; it may have been used as an ornament or as part of a kit for starting fires. On the lid of Burial 2, 2 small adzes of pale green serpentine, with rectangular cross section 3.7 cm and 7 cm long were discovered (Plate IV*n,o*). Another small green adze of similar form was found to the east of megalith No. 5, at a depth of 45 cm.

A finely polished, rectangular-sectioned, serpentine bar 9 cm long and 0.4 cm wide, with a perforation in each end, was found in Burial 3. At the time of excavation, we concluded that it was part of a necklace, but if such were the case, it seems strange that only one link would be interred with the body. A large, crude, leaf-shaped slate fragment, in very friable condition, was found near Burial 2. There is the possibility that it was intended as a rough halberd, to be placed on top or near the tomb as an offering.

Recovered from the coffins and their surroundings were 12 slate needles that showed scratches on the sides from use or working. They may have been used as hairpins or fasteners for clothing. With the variety of materials available, including bamboo or bone, it seems unlikely that brittle stone would be used for awls.

Stone artifacts from the test trenches. Locus 2*d* yielded two interesting chipped basalt adzes that show slight evidence of a tang. They are completely chipped, with oval cross section. Perhaps they were used as specialized hoes, since completely polished rectangular adzes, presumably used for woodworking, were also found.

Rough slate artifacts were first recognized from 2*d*. Roughly shaped knives are the predominant form (Plate IV*e,f*). The T'ai Yuan site abounds in slate fragments that weather and disintegrate easily. Since other Formosan aborigines use slate for architectural features other than tombs, I imagine that this was the case in the prehistoric east-coast sites. This conjecture is borne out by the Peinan site (see below). A single polished slate arrowhead collected from the surface has a central perforation like the Yuan Shan arrowheads (cf. Sung 1955: Fig. VI, VII). A rough, rectangular fragment of a limestone whetstone was also removed from the surface.

From Locus 2*d* was found an oblong bar, 7.6 cm long and 1.2 cm wide, of green serpentine, with a slightly tapered hole running the entire length through the center. It is identical to examples excavated by Kano from Lü Tao (1952: Fig. 88).

Stone artifacts from the surface collections. The following groups of artifacts were classified in the surface collection:

a) roughly chipped basalt adzes or hoes (123 specimens) (Plate III *a,b,d,g*). They are spalls removed from pebbles and retouched. The cortex is visible on the back of every specimen; the blade flares slightly from butt to bit; the cross section is lenticular or roughly oval; there is no polishing or finishing on the sides;

b) 24 additional specimens that appear to constitute a subcategory of "concave undersides"; manufacture was the same as for other hoes, but the curvature and a slightly more flaring bit may indicate use for a more specialized task;

c) andesite or basalt oval hammerstones; show pitting from use on the ends and both sides (3 specimens);

d) large oblong hammerstone of basalt or andesite; show signs of use on ends only; size varies from 9 cm long and 5 cm wide to 19 cm long and 8 cm wide (Plate III*e*);

e) 1 small, very round stone, 6 cm in diameter; shows no traces of percussion; may have been used as a boiling stone for heating liquids in a manner similar to that used by the Ami tribe today;

f) 1 retouched basalt spall about 5 cm thick and 10 cm long; may have been rejected as too thin for a hoe, or may have had a special function for clearing vegetation or cutting rough material (Plate IV*f*);

g) 1 whitish schist curved knife, roughly chipped (13 cm long, 4.5 cm wide) (Plate IV*h*);

h) sandstone oblong picks or mauls with rounded cross sections and blunted edges;

i) perforated stone knives. One is rectangular with two edges polished flat so that they are blunt (Plate IV*g*). The second, found in Locus 3, is of fine, hard, polished white stone, triangular in shape. It appears to have been originally rectangular, and was subsequently broken and redrilled for use, since one of the perforations cuts through the bevel insecurely close to the edge (Plate IV*k*);

j) 1 basalt shouldered stone which looks like a hoe; the only feature which separates it from the first group is the presence of "shoulders" at one end;

k) 2 large quartzite choppers, both of which are irregular spalls, with a crude retouch on one edge. They were probably held in the hand, rather than hafted (Plate IV*a*);

l) 1 dense, hard, greenstone chopper, of the same material and form as examples from surface collections made at the cist coffin sites of K'en Ting and O Luan Pi—made from a rough spall, with the cortex still on one side of the stone; chipping is rough;

m) a chisel or adze of the same kind of hard greenstone material; consists of a smooth, water-washed pebble with one edge ground for use;

n) polished, rectangular greenstone adzes (Plate IV*l,m*); 3 were found on the surface and 1, in Locus 2*a*; they are extremely well-finished tools. The 3 found on the surface seem to have been made to some relatively rigid standard, since their width and thickness are closely similar. The short cross section varies from 1.4 to 1.7 cm, the long cross section from 1.5 to 2 cm, and the width from 5 to 5.5 cm. A second group of rectangular adzes made of green serpentine resembles the specimens from Burial 3. These adzes have proportionately longer cross sections than those made of hard greenstone. Serpentine was generally used only for ornaments; therefore, the adzes may have been intended for nonutilitarian functions. While their distribution is not limited solely to burials, they are the only forms that appear in graves in which adzes are included; perhaps they appear on the surface only when the coffins have been disturbed. The P'ing Lin site, on the eastern slope of the central range in the interior valley, was apparently a workshop for serpentine ornaments;

o) a quartzite or sandstone hafted axe with very dull edges, rather like a maul, may have been made by the Ami; the form is very similar to Ami examples in the Institute of Ethnology of Academia Sinica and is unknown from the other archaeological sites of the east coast (Plate IV*i*).

Associated Remains

Recovered from the T'ai Yuan site were 3 cist coffins. None was in a perfect state of preservation. I excavated a more complete example in 1963 on the slope of Shih Shan, north of Taitung, on the west side of the road, about 1 km north of the village. The 1963 find was a cist tomb 1.8 cm long. The usual form seems to have been to use slabs of slate or shale that formed a stone box. It is a standard feature of the Taiwan east-coast examples to have the two end slabs protrude a considerable distance below the bottom slab. This seems to give the coffin stability. The grave goods include stone ornaments, knives, pottery, stone needles, and serpentine adzes. In another tomb described by Wu (1963: 73–77), stone rings, beads, and potsherds were found; whereas, in the one at Shih Shan, two long serpentine adzes were the only contents. The slabs of the Shih Shan coffin bore perforations near the ends of the slabs as if they had first been bound or lashed together, but this feature was not noted in the T'ai Yuan coffin. The holes may have been used for carrying the slabs from their place of origin to the burial site.

The Peinan Site

The Peinan site is situated 4 km northwest of Taitung, about 500 m northwest of the small village of Peinan, in a residential and agricultural area known as Nan Wang. The site was excavated by Kanaseki and Kokubu in 1945 and was reported in 1957. It had first been reported in 1914, and also was worked for a few months in 1928 and 1929 (Kanaseki and Kokubu 1957: 48). A prehistoric house 15 m long and 4.3 m wide, with walls, uprights, and subterranean floor of slate slabs was discovered. About 1500 m to the west, a cist coffin was found near Mount Hinashiki when the land was being cleared.

Pottery

The pottery is described as being brownish-red, and reddish-gritty. From my own surface collections from Peinan, I can say that it is the same as the pottery from T'ai Yuan. One fragment of black pottery, part of a bracelet, was recovered by Kanaseki and Kokubu from the west wall of the house. Jars with outward flaring mouths and ringed feet (some of which have perforations), a straight bottle form (1 example), *hachi*, or wide, flat-bottomed containers, and vertical and horizontal containers were found. One lid, identical to the example from T'ai Yuan and a lid with a short, upright handle similar to those from Feng Pi T'ou and Ta P'eng K'eng were found. Small reddish-brown cups and bowls with conical or flat bases also occurred. Evidence for the presence of *ting* tripods consisted mostly of broken legs (sometimes considered to be handles). Two sherds showed the joint of these to the body.

A few polished gray sherds were also found, as well as spindle whorls identical to those from T'ai Yuan.

Chipped hoes and pestles, as well as finely polished rectangular adzes and perforated stone knives were also found. As at T'ai Yuan, no fishing equipment was recovered. Large stone troughs with multiple rectangular depressions, perhaps used for feeding pigs or dyeing textiles, were found on the surface.

One piece of iron, heavily corroded, occurred in the silt covering the site, and is believed to be intrusive. The shape is not suggestive of any particular kind of tool (Kanaseki and Kokubu 1957: 61).

In checking a stone wall at the Peinan site in 1963, we found a large stone bowl of the same shape as the one from the uppermost terrace (Locus 3) of T'ai Yuan. (It is also illustrated by Kano, 1930: 278). A further upright of material other than slate, perhaps similar to the limestone examples from T'ai Yuan, was reported by I. de Beauclair after a trip to the site in early 1965 (personal communication).

OTHER SITES ON THE EAST COAST AND IN SOUTHERN TAIWAN

T'ai Ma Li

Wu (1963) reported cist coffins from two locations, Pin Mao and Hsin Chi, near T'ai Ma Li Village, south of Taitung. A pile of stones, possibly used as a house foundation, was found near the Pin Mao coffin site, and a stone pile and house poles were found on a slope to the west of T'ai Ma Li village. Wu provides a summary bibliography of works investigating the previous existence of aborigines on the east coast and concludes that the east-coast megaliths may have been the work of Negritoes who died out with the advent of other groups. However, since no modern pygmy groups have a material culture as elaborate as that inferred from the T'ai Yuan remains, it seems unlikely that Negritoid groups were responsible for the east-coast remains.

Hoes with constricted middle portions that look like violins were found on the surface near T'ai Ma Li; they are the predominant type on Lan Yü.

K'en Ting and O Luan Pi

Cist coffins occur in the very south of Taiwan, within the boundaries of K'en Ting Botanical Park, at the northern boundary of the village of O Luan Pi, and south of the village of K'en Ting in a small, flat, sandy plain. The latter site was excavated by a party from the Taihoku Imperial University in 1934. It yielded about 20 coffins, in which the well-preserved skeletons reposed with their heads to the southwest. The grave goods included the following: a necklace of jade beads and perforated oblong pieces; a bracelet made of a cone shell, a semilunar shaped shell pendant, clay bracelets, and complete pottery vessels. A great number of shell species were used to make various artifacts. The account of Utsurikawa (1936) gives no mention of the K'ang Hsi coin which was found in one of the tombs, but it is mentioned by Kano (1952: 187) and, if it is not intrusive, indicates that the K'en Ting coffins are only about 250 years old.

The K'en Ting site is rather specialized, when compared to the east-coast sites. It is important to remember that it is separated from the sites in the vicinity of Taitung by more than 80 km; the populations which produced these sites may have also occupied the intervening southeast coast, which is still archaeologically unexplored. The bottle forms from the K'en Ting tombs (Kano 1952: 126) are particularly close to some of the forms from Feng Pi T'ou. The better state of preservation of the bones might indicate that the site is much more recent, were it not for the dry conditions of the K'en Ting region. Although the matter cannot be fully settled without some independent means of dating, it would seem logical to discount the presence of the single K'ang Hsi coin as a later intrusion.

A small square cist grave in the park at K'en Ting, which contains preserved fragments of wood, indicates that the cist grave burial practice was carried on by the Paiwan living in the area until quite recent times. The K'en Ting and O Luan Pi sites yielded choppers, mentioned above, which show relationships with sites such at T'ai Yuan.

Tolan

The Tolan site contains megaliths, coarse, orange, gritty pottery and roughly chipped basalt hoes. It is situated several km from the seashore on the cultivated slopes of the coastal range. Much of it has been disturbed in the construction of rice paddies. In addition to shouldered stones, 2 new forms of megaliths occur. Several stones (including 1 from the site preserved in the museum of National Taiwan University) have a rectangular indentation in one end, instead of the constricted protuberance of the shouldered stones. It has been suggested that the stones with protuberances are male stones, while the ones with the indentation are female stones. A huge stone, mentioned above, displays two large bumps on the portion above ground. It is unique on the west coast. A stone tank, hollowed from a larger boulder, remains *in situ*.

Tung Ho

North of the village of Tung Ho, the Pei Ch'i (North River) empties into the Pacific after winding through the T'ai Yuan Valley and the mountain gorge that takes it to the sea. On the higher slopes on both sides of the river, about 1 km from the sea, are shouldered and grooved stones, with many potsherds on the surface. The stones have all been removed from their original positions, and the entire site is under cultivation.

Peshern and Shin She

The chief feature of the Pesheren (Pai-shou-lien in Chinese, but Pesheren in Ami) site, a large, carefully finished stone tank or coffin, has been illustrated by Chang (1957: Fig. 4, No. 12) from Kano (1930: 284). At the same site, on the edge of a deep stream valley, in the foothills of the coastal range, there is another large tank or coffin, similar to the one illustrated. According to Kano (1930: 285), the Pesheren example is 7 ft. long (feet being a translation of the Japanese *shaku*), 4 ft. wide, 5 ft. high (outside measurements), and 5 ft. deep. Another large tank or coffin has been found at Shin She, further north along the coast, high on a slope above the sea. In the environs of the Shin She example, chipped hoes were found.

Ch'ang Pin

On the lower slopes of the mountains behind the hamlet of Chung Yung, known also as Katsawan, behind the town of Ch'ang Pin, a megalithic site was investigated by Sung in 1963. No megaliths remained in their original position at that time; all have been rolled down the hill from their original plateau site to the village below and incorporated in walls and house foundations. Shouldered stones are the most abundant. An important feature of the site is the presence of large round stones, usually basalt, of doughnut shape with a hole in the center. They are reminiscent of the stone money of the island of Yap in Micronesia, but are somewhat smaller in scale. The only other site with stones of this shape thus far encountered is T'ai Yuan. Coarse, orange, gritty pottery is common, and a few sherds of cord-marked pottery were also found. A small coarse, orange effigy of a dog or pig was found by Sung, and a similar specimen was illustrated by Kanaseki and Kokubu from Peinan (Kanaseki and Kokubu 1957: 55). One wonders whether or not these animal effigies have any relationship to the famous ones from Lan Yü.

On a slight promontory north of Ch'ang Pin, a depression in the shape of a man, about natural size, was pointed out to me in 1965. No pottery occurs in the area around it, and the shape is rough enough to arouse suspicions that it is natural or recent. Nevertheless, it is mentioned here for the record.

Shui Lien

Further up the coast, at Shui Lien, coarse, orange, gritty sherds were found on the slopes behind the present village. No megaliths or hoes were found.

Hualien Park

At Hualien, coarse, orange, sherds were found on the seaward slope of Hualien Park. Local inhabitants reported that burials had been found in the area, and upon checking the literature, I believe that they were referring to the jars excavated by Kokubu and Kanaseki in 1945 (Solheim 1960: 137–141) from the same location. The jars, with artificial perforations in their bottoms and low ring feet, contained no bones, but were assumed to be burial urns.

Shih Ch'eng

To the north of Hualien, cist tombs have been found at Shin Ch'eng near Suao, and on the grounds of the Ilan Agricultural School. The site near the roadside at the village of Shin Ch'eng 4 km north of Suao, was probably one of the largest cemeteries; it yielded 80 coffins. The cemetery was excavated in the spring of 1933 by Taihoku Imperial University (Miyamoto and Utsurikawa 1933). The orientation of most of the graves was northwest to southeast. No bones or grave goods were found. Artifacts, surface-collected from the vicinity, included stone adzes, spindle whorls, one centrally perforated stone point of the Yuan Shan type, perforated stone discs, and a stone, ridged object which looks like a tapa beater. Sung and Shih (1953: 16) report two more possible bark cloth beaters from Peinan and K'en Ting. From a sample of 100 sherds collected by Miyamoto, there are a few cord-marked and incised sherds, ring feet (some with perforation), flaring rims, spindle whorls, and handles with round cross sections.

P'ing Lin, Hong Yueh, Jui Shui

In the interior rift valley, four major sites were noted in the survey of 1963. These were located through notes given to me by W.H. Sung. The first of these is P'ing Lin, which appears to have been a prehistoric workshop for serpentine, since the site is littered with fragments of serpentine in various stages of production. Coarse, orange, gritty pottery is also present. At Hong Yueh cist coffins have also been reported, and at the Ami village adjacent to Jui Hsui, pieces of stone cist coffins have been used for the construction of a long flight of stairs to the small hotel.

Wu Hê

At Wu Hê, a huge upright, more than 5 m high, with evidence of a perforation at the top, like that of Peinan, can still be seen. Beside it, another upright of equal size lies fallen. In the area around the uprights are many coarse, orange, gritty sherds, and in the stone piles composed of rocks cleared from the site are the remains of many cist coffins and perhaps other architectural features. Local people said that at the bottom of a small ravine below the large upright, stone cist coffins were occasionally encountered in cultivation. The site at Wu Hê (Maizuru in Japanese) seems close to the Peinan site.

Sites on Lü Tao and Lan Yü

The two islands to the east of Taitung in the Pacific, Lü Tao and Lan Yü, have both undergone archaeological and ethnographic investigation. Lü Tao can be seen from Taitung or Tolan. Kano found sites scattered all over the island, but the bulk of his data comes from a small, rich site on the southeast coastal flat, known as You Tze Hu (Kano 1952: 407). Chipped basalt hoes, slate knives, polished, rectangular greenstone adzes, bracelets, and tubular beads of serpentine were found. The hoes were said by Kano to have been made of sandstone, but there is no sandstone on the island, according to the geological map in the *National Atlas of China,* Vol. 1 (Chang 1963: Map B2); therefore, the stone must have been brought from the east coast. Stone cist coffins were found in two other localities, and one tomb was reported by Kano to have a bronze knife in it; and from another place on the island, Kano excavated two small fragments of bronze (1952: 420). From You Tze Hu, round cores of serpentine were found; they are the remains after serpentine bracelets were cut out with a section of bamboo rubbed on sand. These show that stone bracelets were being made there as well as in sites such as P'ing Lin.

Lan Yü has so far yielded no cist coffins. Kano found 1 jar burial there. The Yami, in the recent past, left the dead in wooden boxes in isolated places such as the large rock in front of Yeh Yu. The stone hoes that have been collected on the island have a constricted middle portion that gives them a figure-eight or violin shape (Kanaseki and Kokubu 1957: Plate 1). From Lang Tao, at the northern end of Lan Yü, I collected a rectangular adze that is identical to those from Feng Pi T'ou and T'ai Yuan. The Yami culture appears to be an extension of the culture of the Batan Islands, and the Yami language, a member of the Ivatan dialect group.

We still have no idea, however, of how many groups may have crossed Lan Yü in times past, leaving remains yet to be recognized.

THE CULTURE OF THE T'AI YUAN PHASE

A *phase*, as the term is often used in American archaeology, is "an archaeological unit possessing traits sufficiently characteristic to distinguish it from all other units similarly conceived, whether of the same or other cultures or civilizations, spatially limited to a brief period of time" (Willey and Phillips 1958: 22). It is an abstraction from the data, found and inferred, from each site (more truly, components, when sites have more than one occupation), comprising "arbitrary implements, weapons, ornaments, houses, burial rites, and ritual objects (that) are assumed to be the concrete expression of the common social traditions that bound together the people" (Childe 1950: 2). The formulation of the T'ai Yuan phase is possible from the data presented in this section. One should exclude, however, the "Ami" and "corded" pottery because they are not in conclusive association with the remainder of the assemblages found. On the basis of recent materials from the west coast (Chang and Stuiver 1966: 541) the corded pottery appears to be a ware used exclusively in a culture distinct from the Lungshanoid of Yuan Shan. The Ami pottery, which is close to the ethnographic specimens from the Ami tribe in Taiwan museums, is surely related to the present Ami inhabitants of the T'ai Yuan Valley, but, lacking ethnohistorical information, we have no way of ascertaining the data of the arrival of the Ami into eastern Taiwan.

The T'ai Yuan phase is an east-coast phenomenon, extending from the Ilan Valley to southern Taiwan. Its distinguishing features are coarse, orange, gritty pottery jars with ringed feet, and round loop handles, stone cist tombs, and the use of slate for house construction. Influence from northwest Taiwan may be seen in the limited use of incising, and the position of the incising on the handles or lips of the vessels. It follows closely examples from the Yuan Shan culture, which flourished in the Taipei area during the first two millennia B.C. (Sung and Chang 1965; Chang and Stuiver 1966). The centrally perforated points also show connections with Yuan Shan. As remarked above, certain adze forms, pottery forms and paste, especially from the T'ai Yuan site show connections with the Lungshanoid layers of Feng Pi T'ou, which dated by radiocarbon from 1360 B.C. to 490 B.C. (Chang and Stuiver 1966: 540). T'ai Yuan, Peinan, Tolan, Wu He, Ch'ang Pin—these sites at least—I believe to have been dwelling sites, on account of the amount of pottery and the large number of chipped stone hoes found. With the exception of Peinan, the technique of excavation did not lend itself to settlement archaeology. However, it is debatable how much might have been found had the most elaborate techniques been used, since the sites occur in such a warm, damp, climate.

The presence of perforated knives indicates the cultivation of rice or millet or both, and the use of hoes strongly suggests that root crops, such as taro, may have been important. Textiles may have been woven of banana fibres, or, as suggested by Kanaseki and Kokubu, hemp (Kanaseki and Kokubu 1957: 62). The use of stone for construction suggests that the houses may have looked like those of the present-day Paiwan. Fishing was not important according to the archaeological record, although much of the gear may have been made of perishable materials. Today one sees few fishermen on the rocky Pacific coast, and the aborigines in the area do not have canoes, but use bamboo rafts.

No plausible use other than a religious one can be assigned to the shouldered stones, the slotted stones, or the stone rings. Actually, their distribution is restricted to a part of the coast no more than 60 km in length. Perhaps they represent a localized religious cult. Even today, with relatively efficient communications, aboriginal groups with different languages and customs occupy contiguous areas, maintaining complete ideological independence.

The provenience of the T'ai Yuan phase remains a difficult question, even though the choices are few. The spiny ridge of Taiwan has peaks which are consistenly 3000 m high from Ta Pa Chian Shan in the north to Pei Ta Wu Shan in the south. The easiest routes to the east coast are either from the south or from the northeast, traversing the mountains which drop into the sea between Suao and Hualien. Since the corded pottery is identical in eastern and western Taiwan, it seems certain that early settlers of the east coast arrived from western Taiwan. From the similarities between the east coast remains and the assemblages which followed the cord-marked pottery, it seems safe to assume that the east coast was settled at later times, also from the west, but that the mountain barriers acted as an effective filter in creating major differences between the two areas. In the Shin Ch'eng site the presence of perforated arrowheads of slate, ringed feet and incised decorations on the pottery, as well as a similar paste, and the presence of cist coffins seems to show a mixture of ideas from the Yuan Shan of the Taipei Basin and the east coast T'ai Yuan phase. The custom of making cist tombs may have been derived, with other religious ideas, from the south. Square cist tombs are used at present or were used in the recent past by both the Kalinga of Luzon and the Paiwan of southern Taiwan.

Allowing for the fact that all cultures on the east coast may have changed at a slow rate because of isolation, one could conclude that the T'ai Yuan phase began sometime during the existence of the Yuan Shan Culture and may have persisted long after the Yuan Shan died out in the Taipei Basin. The T'ai Yuan people were probably replaced by the Ami, although much more research on this point is required before our conclusion will be definite.*

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GLOSSARY OF ANGLICIZED PROPER NOUNS

Wade-Giles Romanization	*Chinese Character*
Ch'ang Pin	長濱
Chü Fan Chih	諸番志
Chung Yung	忠勇
Feng Pi T'ou	鳳鼻頭
Hong Yueh	紅葉
Hateruma	波照間
Hinashiki	ヒナシキ
Hsin Chi	新吉
Hualien	花蓮
Ilan	宜蘭
Jui Shui	瑞穂
K'ang Hsi	康熙
Kashōtō	火焼島
K'en Ting	墾丁
Kōtōsho	紅頭嶼
Lan Yü	蘭嶼
Lang Tao	朗島
Lü Tao	緑島
Luung Shan	龍山
Ma Wu	馬武
Mei Lan	美蘭
Nan Wang	南王
O Luan Pi	鵝鑾鼻
Pai-shou-lien	白手蓮
Pei Ch'i	北溪
Peinan	卑南
Pei Ta Wu Shan	北大武山
Pin Mao	賓茂
P'ing Lin	平林
Shih Shan	石山
Shin She	神社
Shin Ch'eng	新城
Shui Lien	水璉
Suao	蘇澳
Ta Pa Chian Shan	大覇尖山
Ta P'eng K'eng	大岔坑
T'ai Ma Li	大麻里
T'ai Yuan	泰源
Taitung	台東
Tolan	都蘭
Tung Ho	東河
Wu Hê	舞鶴
Yaeyama	八重山
Yeh Yu	椰油
You Tze Hu	油子湖
Yu Li	玉里
Yuan Shan	圓山

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Transpacific Contacts

A SELECTED ANNOTATED BIBLIOGRAPHY

Received 13 February 1967

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In the last 150 years, a truly impressive corpus of published material has appeared on the origin and the prehistoric and historic affiliations of New World peoples. Various writers have believed American Indians had early contact with or descended from the Phoenicians, Egyptians, Israelites, Trojans, Romans, Chinese, Hindus, Polynesians, Australians, or Africans—to mention only a few. For the most part, hypotheses of the Indians' transpacific or transatlantic contacts are based upon fancy. However, some hypotheses are supported by detailed research and appear to have some validity. Without doubt, the most scholarly research of Oceanic contact has been done by researchers of transpacific contact. That is, the lost continent of Atlantis and the Atlantic route between the new and the old worlds have received little published space compared to the number of pages that have been written on the Pacific route.

During the latter part of the nineteenth century and the first two decades of the twentieth century, several anthropologists devoted much energy to proving or disproving transpacific contact. After these "extreme diffusionists" had been laid to rest by more conservative American anthropologists, the latter group simply disregarded the transpacific contact controversy. But, the agnosticism of a few years ago is presently being overshadowed by new research on the many problems involved in transpacific contact, If transpacific contact should be conclusively demonstrated, many of the anthropological theories and methods relating to independent invention and diffusion must undergo serious reevaluation. Because of the renewed interest in the transpacific contact controversy (probably stimulated by the work of Gordon Ekholm, Clifford Evans, Robert Heine-Geldern, Betty J. Meggers, and Paul Tolstoy, to mention only the most prominent), and because of the theoretical significance of this problem, it seems worthwhile to present a selected annotated and unannotated bibliography that we feel may prove useful to researchers of transpacific contact.

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1912 The independence of the culture of the American Indian. *S* 35: 46–55.

This is a critical analysis of the position of the German diffusionists as related to the relationship between Melanesia and America. Not as good as his later works on the same subject, but a significant publication.

1928 *The building of cultures.* New York: Charles Scribner's Sons.

A detailed and scholarly analysis of the cultural similarities that have been noted between Asia, the Pacific, and the New World. Although basically opposing transpacific contact, the author presents an outstanding discussion of the anthropological theories involved in this problem.

1933 *Contact With America across the Southern Pacific, The American aborigines,* D. Jenness, ed. Toronto: University of Toronto Press.

A critical analysis of the cultural similarities between the Pacific and the New World. Discussion of Northwest Coast houses and carving compared to similar works in New Zealand is especially interesting. Like his earlier work, commendable.

EDWARDS, CLINTON R.

1960 Sailing rafts of Sechura: history and problems of origin. *Southwestern Journal of Anthropology* 16: 368–391.

Using historical sources, the writer presents evidence for the use of sails on Peruvian rafts before the arrival of the Spanish. It is noted that centerboards are known from graves at Paracas and Ica that are dated around A.D. 1000.

EKHOLM, GORDON F.

1946 Wheeled toys in Mexico. *American Antiquity* 11: 222–228.

At this time, Ekholm believed that the evidence indicates fairly conclusively that the miniature wheeled vehicles were made, and there was, therefore, some knowledge of the principle of the wheel, in pre-conquest Mexico.

1953 A possible focus of Asiatic influences in the Late Classic cultures of Mesoamerica. In Marion W. Smith, ed, *Asia and North America: Trans-Pacific Contacts,* pp. 72–97. Society for American Archaeology, Memoir 9. Menasha, Wisconsin.

Ekholm points out three periods in the Mesoamerican sequence which present definite problems of possible extra-American influence: the beginning of the Formative period, the beginning of the Classic period, and the late Classic period. Directing his attention towards the last of these, he defines "Complex A," a group of traits found at Palenque and Piedras Negras and compares them with traits from India, Cambodia, Java, and Indochina.

1964 Trans-Pacific contacts. *AP* 7, 1–2: 83–85.

The writer notes that there has recently been a renewed interest in his subject. The source includes a short annotated bibliography which is, in part, reproduced here.

ERASMUS, CHARLES JOHN

1950 Patolli, Pachisi, and the limitations of possibilities. *Southwestern Journal of Anthropology* 6, 4: 369–387, Winter.

A fine article on the problem of diffusion between the games of Patolli and Pachisi. He concludes: there is no proof or incontestable evidence for either diffusion or independent development in this case, nor is there likely ever to be.

ESTRADA, EMILIO, and BETTY J. MEGGERS

1961 A complex of traits of probable transpacific origin on the Coast of Ecuador. *AA* LXIII, 5:913–939. Salt Lake City.

The Ecuadorian complex consists of traits found in the Bahia and Jama-Coaque phases on the coast of Ecuador, which date to the beginning of the

Mesoamerican Classic period (around the time of Christ). Old World sources for these traits include Sumatra, Java, New Guinea, the Caroline islands of Micronesia, Thailand, Indochina, China, Formosa, and Japan.

ESTRADA, EMILIO, BETTY J. MEGGERS, and CLIFFORD EVANS

1962 Possible transpacific contact on the coast of Ecuador. *S* 135: 371–372.

The discovery of pottery dated around 2500 B.C. from coastal Ecuador that shows similarities with Middle and Late Jōmon pottery of Japan prompt the writers to suggest the possibility of maritime contact between Japan and Ecuador.

FOSTER, GEORGE M.

1960 *Culture and conquest, American's Spanish heritage.* Chicago: Quadrangle Books.

A study of acculturation at the time of the Spanish conquest in the New World. The body of Spanish culture which was brought over by the conquistadors is also discussed.

FRANCH, JOSE ALCINA

1952 Diffusion of pottery stamps. *Proceedings of the Thirtieth International Congress of Americanists,* The Royal Anthropological Institute, London, p. 248.

Franch compares the seals or pottery stamps of Mexico, as seen in the collections of the Musée de l'Homme in Paris and other collections in the National Museum of Mexico City with similar objects found in the rest of the world; suggests they were introduced originally from Africa and the near East, via the Mediterranean, to America, in Neolithic times.

FRASER, DOUGLAS

1962 *Primitive art.* New York: Doubleday and Company.

A good presentation of primitive art with emphasis on historical relationships.

HALL, D.G.E.

1960 *A History of South-East Asia.* New York: The MacMillan Co., Ltd.

A detailed history of Southeast Asia. Very good for dates, names, and places, but limited in interpretation.

HART, C.W.M., and ARNOLD R. PILLING

1960 *The Tiwi of Northern Australia.* New York: Holt, Rinehart and Winston.

Besides the general ethnographic account of this group, there is some good information on the history of discovery for the Melville Island area. Also the section on history gives a good impression of the nature of the various contacts in the area and also the kinds of material items that the natives kept and used.

HEINE-GELDERN, ROBERT

1959*a* Chinese influence in Mexico and Central America: The Tajin style of Mexico and the marble vases from Honduras. *Actas del 33ra Cong Internac de Americanists,* pp. 195–206. San Jose, Costa Rica.

The Dongson culture of northeastern Indo-China and the Late Chou culture of China are suggested for the similarity of designs found on marble vases of the Ulua valley in Honduras and art motifs in the Tajin site of Vera Cruz.

1959*b* Representation of the Asiatic tiger in the art of the Chavin culture: a proof of early contacts between China and Peru. *Actas del 33ra Cong Internac de Americanistas,* pp. 321–326. San José, Costa Rica, 1958.

Stone feline figures of Chavin culture of Peru and Late Chou bronze tigers are compared; Heine-Geldern stresses Chinese influence. He does not say that

Chavin began with Chou contact, rather he believes contacts may have ceased with the end of the Yueh Kingdom, ca. 33 B.C.

1959*c* Chinese influence in the pottery of Mexico, Central America, and Columbia. *Actas del* XXXIII *Congreso Internacional de Americanistas, Tomo* 1, pp. 207–210. San José, Costa Rica.

Heine-Geldern sees similarities between perforated vessel supports of the Chinese Han period and those of Late Ticoman, Teotihuacan III, Zaculeu, Kaminaljuyu, and Copan of Mesoamerica.

1964 One hundred years of ethnographic theory in the German-speaking countries: Some milestones. *CA* 5: 407–418.

A short but excellent survey of the development of ethnological theory in German-speaking countries. Some of the theories are relevant to an understanding of the problem of transpacific contacts.

Heine-Geldern, Robert, and Gordon F. Ekholm

1951 Significant parallels in the symbolic arts of Southern Asia and Middle America. *The civilizations of ancient America.* Selected Papers of the XXIXth International Congress of Americanists, ed. Sol Tax, pp. 200–309. Chicago: University of Chicago Press.

The authors see evidence of transpacific contact between A.D. 100 and A.D. 600 from Asia, of Hindu-Buddhist affinity; i.e., the lotus plant and its rhizome that appear in Middle America during the middle of the Classic period. Of the traits listed, it would appear that the lotus plant is quite similar, but they are uncertain as to its actual New World cultural association, i.e., Toltec or Maya.

Herring, Hubert

1959 *A history of Latin America.* New York: Alfred A. Knopf.

A general history of Latin America with good bibliographic references.

Heyerdahl, Thor

1950 *Kon-Tiki.* New York: Permabooks.

A report on the Kon-Tiki expedition. The expedition as reported in this source demonstrates that a group of men can voyage from the coast of Peru to the Auamotu Islands on a "prehistoric raft." The writer argues that he and his crew had followed the same route that Viracocha and taken.

1952*a* Objects and results of the Kon-Tiki expedition. *Proceedings of the Thirtieth International Congress of Americanists,* pp. 76–81. London: The Royal Anthropological Institute.

A summary of the results of the Kon-Tiki expedition. The argument is advanced that Polynesia is located within the range of Peruvian aboriginal craft, as was demonstrated by the expedition.

1952*b* *American Indians in the Pacific: the theory behind the Kon-Tiki expedition.* London, Oslo, and Stockholm: George Allen & Unwin.

This source represents the writers most serious and scholarly attempt to prove his thesis that the origin of the peoples of Polynesia is in the New World. Here he evaluates the major theories concerning the origin of Polynesian peoples and American Indians, particularly noting their shortcomings. He then offers linguistic, cultural, archaeological, and other evidence that he claims gives validity to his thesis.

1952*c* Aboriginal navigation in Peru. *Proceedings of the Thirtieth International Congress of Americanists*, pp. 72–76. London: The Royal Anthropological Institute.

The presentation of the evidence for Peruvian balsa rafts and raft navigation in early times of conquest. The carrying weight of balsa is discussed.

1955 The balsa raft in aboriginal navigation off Peru and Ecuador. *Southwestern Journal of Anthropology* 11: 251–264.

An attempt to demonstrate that balsa rafts could be sailed west from South America by following prevailing winds or by tacking against contrary winds.

1957 Guara navigation: indigenous sailing off the Andean Coast. *Southwestern Journal of Anthropology* 13: 134–143.

An argument for the extensive practice of sailing on the coast of Peru in pre-Inca times.

1958 *Aku-Aku: the secret of Easter Island.* New York: Pocketbooks Inc.

A clear statement of visual resemblances as seen by the writer, between certain cultural traits (especially stone work) in South America and on Easter Island. This is an adventure book in intellectual speculation.

1963 Feasible ocean routes to and from the Americas in pre-Columbian times. *American Antiquity* 28: 482–488.

A discussion of the importance of ocean currents as they are related to trans-pacific contact. The writer suggests that the currents of the north Pacific are best suited for voyages from Asia to America.

HEYERDAHL, THOR, SOREN RICHTER, and H. J. RIISER-LARSEN

1956 Great Norwegian expedition, pp. 191–222. Oslo: Dreyers Forlag.

A restatement and clarification of some of the points made in Kon-Tiki. The emphasis is on sailing techniques.

HEYERDAHL, THOR, and EDWIN N. FERDON, eds.

1961 *Archaeology of Easter Island: reports of the Norwegian archaeological expedition to Easter Island and the East Pacific.* Monograph of The School of American Research and the Museum of New Mexico 24. Chicago: Rand McNally and Company.

This report represents over five months of archaeological investigation on Easter Island under the direction of professional archaeologists. This source suggests possible contact from South America as based on the archaeological evidence.

HORNELL, JAMES

1946 *Water transport: origins and early evolution.* Cambridge: Cambridge University Press.

For purposes here, this source, using Chinese dynastic annals and other accounts, suggests that there were seagoing vessels capable of crossing the Pacific Ocean at least from A.D. 1 on.

HUDSON, GEOFFREY F.

1961 Europe and China: a survey of their relations from the earliest times to 1800. London: Edward Arnold, 1931. Paperbound reprint, Boston: Beacon Press.

Chapters 2 and 3 summarize East-West relations in Han times.

HUTCHINSON, G.E.

1950 Survey of contemporary knowledge of Biogeochemistry 3, The Biogeochemistry of Vertebrate Excretion. *Bulletin of the American Museum of Natural History* 96. New York.

Source of the approximate date for change in the Peru Current and what this change brought about.

JARCHO, SAUL

1964 Some observations on disease in prehistoric North America. *Bulletin of the History of Medicine* 38, 1: 1–19.

Jarcho's research revealed that there was no malaria, yellow fever, scurvey, goiter, or cretinism in the New World in pre-Columbian times.

JENNESS, DIAMOND, ed.

1933 *The American aborigines.* Published for Presentation at the Fifth Pacific Science Congress, Canada. Toronto: University of Toronto Press.

A collection of writings by anthropologists dealing with the Indians of America. This is a good work and should be consulted when researching transpacific contacts. See other citations in this bibliography.

1940 Prehistoric culture waves from Asia to America. Annual Report of the Board of Regents of the Smithsonian Institution for 1940: 383–396.

A survey of archaeological evidence supporting the Bering Strait route as the path of cultural influence from Asia to the New World. Transpacific evidence is introduced but quickly dismissed.

JOHNSON, HARRY PRESCOTT

1945 Diego Martinez de Hurdaide. In *Greater America*, pp. 199–218. Berkeley: University of California Press.

An essay, which seems slightly exaggerated at points, recounts the exploits of Hurdaide, in subduing an area of northwestern Mexico.

JONES, VOLNEY H.

1952 Material From the Hemenway Archaeological Expedition (1887–88) as a factor in establishing the American origin of the garden bean. In Sol Tax, ed., *Indian tribes of aboriginal America, selected papers of the* XXIXth *International Congress of Americanists, 1952,* pp. 177–184. Chicago: The University of Chicago Press. Suggests that America is the home of the garden bean.

JONKER, F.P.

1962 Heyerdahl's Kon-Tiki theory and its relation to ethnobotany. Annual Report of the Smithsonian Institute for 1961, pp. 535–550.

The most up to date review of botanical evidence concerning contact between America and Polynesia. To support his thesis, the author refutes most of the botanical evidence claimed by Heyerdahl.

KERR, ROBERT

1812 *History of the discovery and conquest of Chile: a general history and collection of voyages and travels.* Edinburgh: V. William Blackwood.

This is a part of one of the early comprehensive accounts of man's wanderings. It pays special attention to the activities of Almagro and Valdivia in Chile and is useful in comparing the similarities and differences between the two expeditions.

KROEBER, A.L.

1931 Historical reconstruction of culture growths and organic evolution. *AA* 33: 149–156.

A good discussion of the theoretical significance of the pattolli-pachise parallel (see Tylor 1879, Erasmus 1950). The writer argues that scholars have not made a distinction between relationships owing to convergence or independent parallel origin and relationships caused by common origin and spread by diffusion.

LAUFER, BERTHOLD

1909 *Chinese pottery of the Han dynasty.* Publication of the East Asiatic Committee of the American Museum of Natural History. The Jacob H. Schiff Chinese Expedition. Leiden: E.J. Brill, Ltd.

Largely descriptive, also gives some historical background for the Han Dynasty. Fairly well illustrated.

LING, SHUN-SHENG

1956 Patu found in Taiwan and other East Asiatic regions and its parallels in Oceania and America. *Bulletin of the Department of Archaeology and Anthropology,* Taipei, Formosa, 71: 82–104.

The writer shows that the *patu* of Oceania and America occurs in Taiwan and mainland Asia and suggests possible routes of diffusion.

1957 Dog sacrifice in ancient China and the Pacific area. *BIEAS* 3: 37–40 (English summary).

The dog, pig, and fowl were of primary importance among domesticated animals of the ancient Pacific area. Their use was primarily ceremonial, secondarily for food. The dog was the most ancient and the most widely used in ceremony. Dog sacrifice occurred among two different East Asian cultural stocks, the Austronesians in the South and the Paleoasiatics in the north.

1961*a* Bark-cloth culture and the invention of paper-making in ancient China. *BIEAS* 11: 29–50 (English summary).

Concludes that written records of bark-cloth manufacture appear as early as the sixth century B.C. in China, i.e., during the Late Chou Dynasty.

1961*b* On the bone, bronze, and jade spatulas in Shang-Chou period. *BIEAS* 12: 213–216 (English summary).

Primarily descriptive, based on Chinese historical sources.

1962 Stone bark-cloth beaters in South China, Southeast Asia, and Central America. *BIEAS* 13: 195–212 (English summary).

Bark-cloth culture spread from its East and South Asian source and finally reached Central and South America.

MARSZEWSKI, THOMASZ

1961 Remarques sur l'état des recherches concernant les contacts entre les peuples de l'Asie et de l'Amerique precolombienne [Observations on the state of research concerning contacts between the peoples of Asia and those of pre-Columbian America]. *Folia Orientalia* 2: 117–204. A discussion of the arguments in favor of and against Asian influence in the New World.

MARTIN, WALTER R.

1962 *The maze of Mormonism.* Grand Rapids: Zondervan Publishing House.

This is a good source to use with Reynolds (1957). This source contains a good discussion on the lost nine and one-half tribes of Israel and their relationship to the origin of the American Indian. Although few scholars accept the Lost Tribes of Israel hypothesis, the data used to support the hypothesis are worth considering.

MOURANT, A.E.

1962 Blood groups in the Pacific area. *Proceedings of the 8th Congress of the International Society of Blood Transfusion,* 1960, pp. 149–153. Tokyo.

A discussion of blood groups and how they are related to possible contact between Polynesians and American Indians. The writer believes that the blood-group evidence does not support Heyerdahl's thesis (1952, 1958, etc.).

NACHTIGALL, HORST VON

1960 Zur Entstehung der Amerikanischen Hochkulturen. [On the origin of Amerindian civilizations]. *Peideuma* 7: 151–172.

"The early American civilizations are considered to be linked with the mesalithic complex of Eurasia" (from Ekholm 1964).

NAUDOU, JEAN

1962 *A propos d'un eventuel emprut de l'art Maya aux arts de l'Inde Exteriekre, Atken des 34, Internationalen Amerikanistenkongresses* [Concerning the possible borrowing of Mayan art from the arts of India and Southeast Asia, Proceedings of the 34th International Congress of Americanists, Vienna]. Wien, 1960: 340–347.

"The lotus panels from Chichen Itza, Yucatan, are compared in some detail with those of India and Southeast Asia. The complex of various elements that occurs in both places is considered to be proof of relationship although the exact place of origin in Asia in uncertain" (from Ekholm 1964).

NORDENSKIOLD, ERLAND

1933 Origin of the Indian civilizations in South America. In D. Jenness, ed., *The American aborigines,* pp. 249–311.

An evaluation of some of the cultural similarities between Oceania and South America (e.g., blow-gun, square sails, wooden pillows, wooden seats, and pile-dwellings). Basically, the argument is in support of independent invention, though diffusion is considered a remote possibility in some cases. If contact occurred, it was owing to accident, rather than direct colonization.

NUTTALL, ZELIA, ed.

1914 *New light on Drake; a collection of documents relating to his voyage of circumnavigation,* 1577–1580. London: Hakluyt Society.

This work is composed of a selection of letters and documents concerning Drake's circumnavigation, many of which were previously unpublished. The same incidents are often related from different perspectives.

OBAYASHI, TARYO

1959 Divination from entrails among the ancient Inca and its relation to practices in Southeast Asia. *Actas del* XXXIII *Congreso Internacional de Americanistas* 1: 327–332. San Jose, Costa Rica.

Suggests that Chinese culture of late Chou Age contributed divination from entails to the Andean area in the first half of the first millenium B.C.

PERRY, W.J.

1923 The Children of the sun. New York: E.P. Dutton and Company.

Following G.E. Smith, the writer derives the civilizations of the world from the Sixth Dynasty from Egypt. The Phoenicians, from their reputed homeland in the Persian Gulf, are given the major responsibility of transporting Egyptian culture through the Pacific and to the New World.

RANKING, JOHN

1827 *Historical researches on the conquest of Peru, Mexico, Bogata, Natchez, and Talomeco, in the thirteenth century, by the Mongols, accompanied with elephants.* London: Longman, Rees, Orme, Brown, and Green.

Drawing heavily from Peruvian stories related to the Spanish, this writer attempts to demonstrate that the civilizations of Central and South America grew out of a Mongol invasion during the thirteenth century. Elephants play a prominant role in this hypothesis.

REUTER, E.B.

1934 *Introduction, race and culture contacts,* pp. 1–18. New York: McGraw Hill.

Various aspects of culture contact situations are described from a sociological-psychological point of view.

REYNOLDS, GEORGE

1957 *The story of the Book of Mormon.* Salt Lake City: Desert Book Company.

This source should be used with Martin (1962) if one needs an up to date statement on the Mormon position on the origin of the American Indian.

RIVERS, W.H.R.

1923 *Psychology and politics.* New York: Harcourt, Brace & Co., Inc.

Using data collected by Smith (e.g., 1924), the writer argues evidence of adequate sea craft is not necessary to demonstrate transpacific contacts. To account for the lack of such evidence, the writer argues degeneration of culture.

RYDEN, STIG

1956 Did the Indians in Chile know the use of sails in pre-Columbus times? *Southwestern Journal of Anthropology* 12: 154–156.

The writer argues that the pre-Columbian Indians in the New World did not have knowledge of sails. He further claims that Heyerdahl has misinterpreted evidence pertaining to sailing craft in pre-Columbian times.

SEMPLE, ELLEN

1958 Migration eternal and universal. In *Race: individual and collective behavior,* pp. 163–167. Glencoe, Illinois: Free Press.

General hypotheses on historical movement, emphasizing differences between "primitive" and "civilized" groups, are given in this overall picture of migration.

SIMONS, R.T., and J.J. GRAYDMON

1957 A blood group genetical survey in Eastern and Central Polynesians, *American Journal of Physical Anthropology* 15: 357–366.

A discussion of the absence of the Diego antigen in Polynesia and how it pertains to the relationship between Polynesians and American Indians.

SMITH, G. ELLIOTT

1915 Pre-Columbian representations of elephants in America. *Nature,* Nov.: 340–341, Dec.: 425.

The writer argues that the carved figures near the top of Stela B at Copan represent Indian elephants ridden by turbaned mahouts.

1916 Pre-Columbian representations of the elephants in America. *Nature,* Jan.: 593–595.

In reply to Spinden (1916) and Tozzer (1916), the writer argues again for

elephants carved near the top of Stela B at Copan. The writer is very critical of Spinden.

1924 Elephants and ethnologists. London: Kegan Paul, Trench, Trubner & Co., Ltd.

Represents the last systematic attempt by the writer to demonstrate that the civilizations of the New World were a result of Old World influence. The routes and dates of Egyptian cultural transmission and Asian influence in the New World are set forth in this source. A good statement of the theoretical position of the extreme English diffusionists.

SORENSON, JOHN L.

1955 Mesoamerican traditions of immigration by sea. *El Mexico Antiguo* 8: 425–437.

Collection of historical reports and native-written records that appear to indicate transpacific contacts with Mesoamerica.

SPINDEN, HERBERT J.

1916 Pre-Columbian representations of the elephant in America, *Nature* Jan.: 592–593.

The writer argues that the figures near the top of Stela B at Copan represent blue macaws. The argument is presented against that offered by Smith (1915, 1916).

STEWARD, JULIAN H., and LOUIS C. FARON

1959 *Native peoples of South America.* New York: McGraw-Hill Book Co., Inc.

The authors believe that the case for transoceanic influence on some of the later cultures of South and Middle America has some foundation. They would maintain that there is some evidence that stray boat loads of Asians or people of Oceania reached the New World. Domesticated plants such as the bottle gourd, cotton, sweet potato, and yam, plus the blow gun, panpipes, litters, and art motifs appear to remain, at this date, unresolved.

SUGGS, ROBERT

1960 *The island civilizations of Polynesia.* New York: New American Library.

One of the most up to date sources on the history and prehistory of Polynesia. Of particular importance here is the writer's critical analysis of Heyerdahl's thesis (1952, 1958, etc.).

SWADESH, MORRIS

1964 Linguistic overview. In Jesse D. Jennings and Edward Norbeck, eds., *Prehistoric man in the New World.* Published for William Marsh Rice University. Chicago: University of Chicago Press.

A good statement on the present status of linguistic studies in relation to transpacific contact. Comparing Malayo-Polynesia, Chonan, and Hokan languages and legends, the writer comes to the conclusion that linguistic evidence neither supports nor refutes transpacific contact.

THOMPSON, EDGAR T.

1958 Motives: migration and settlement. In *Race: individual and collective behavior,* pp. 68–71. Glencoe, Illinois: Free Press.

A stress on the importance of motives within national groups, rather than on national culture migration and settlement is given in this short article.

TOLSTOY, PAUL

1963 Cultural parallels between Southeast Asia and Mesoamerica in the manufacture of bark cloth. *Transactions of the New York Academy of Sciences, Series II*, 25; 6; 646–662. New York.

On the basis of an extensive and detailed analysis of bark-cloth manufacture, he points to "some part of eastern Southeast Asia, on the periphery of Chinese cultural influence" as the likely source of the Mesoamerican industry. That contact between these two areas occurred is suggested by the appearance of this industry in the area of upper Central America and the isthmus of Tehuantepec towards the beginning of the first millenium B.C.

TOZZER, ALFRED M.

1916 Pre-Columbian representations of the elephant in America. *Nature*, Jan.: 592.

The writer argues that the carved figures near the top of Stela B at Copan are either blue macaws or the "long-nosed god." They are not elephants as argued by Smith (1915, 1916).

TYLOR, E.B.

1879 On the game of patolli in ancient Mexico. *Journal of the Anthropological Institute of Great Britain and Ireland* 8.

The writer feels that the Hindu game of Pachisi and the Mexican game of patolli (and certain other North American games) are similar enough to constitute a historical connection between the Old World and the New World. This, and other similarities owing to contact between the two areas, according to the writer, was probably because of accidental drifting of boats and junks.

VERRILL, A. HYAT

1929 *Old civilizations of the New World.* Indianapolis: Bobbs-Merrill Company.

Contributes little to an understanding of transpacific cultural relationships. It is a rehash of extreme diffusionist ideas that were presented long before the publication of this book.

VOKES, EMILY H.

1963 A possible Hindu influence at Teotihuacan. *American Antiquity* 29, 1; 94–95. Salt Lake City.

It is suggested here that a conch shell in bas-relief at the temple of Quetcaloctl at Teotihuacan indicates a possible Hindu influence. The species represented is possibly closely related to the "Sacred Chacnk" of India.

WAUCHOPE, ROBERT

1962 *Lost tribes and sunken continents.* Chicago: University of Chicago Press.

Although lacking in depth, this is an excellent survey of the hypotheses related to transpacific-transatlantic contact. This book clearly places the transpacific controversy in historical perspective. The author's position is unbiased.

WISSLER, CLARK

1933 Ethnological diversity in America and its significance. In D. Jenness, ed., *The American aborigines*, pp. 165–216.

The author finds it strange that so much space is devoted in the anthropological literature to the consideration of when and how man arrived in the New World. The writer attacks the extreme diffusionists and argues that geographical continuity of cultural traits or complex is necessary to demonstrate transpacific historic connections.

WEN, CH'UNG-I

1961 Bird-ancestor legends of Northeast Asia, Northwest America, and the Pacific. *BIEAS* 12: 102–106 (English summary).

The author cannot determine relations of these areas on the basis of bird-ancestor legends.

UNANNOTATED BIBLIOGRAPHY

BAGCHI, P.C.

1951 *India and China: a thousand years of cultural relations.* New York: Philosophical Library.

BARRAU, JACQUES, ed.

1963 Plants and the migrations of Pacific peoples. *Tenth Pacific Science Congress Symposium.* Honolulu: Bishop Museum Press.

BASHAM, A.L.

1954 *The wonder that was India.* New York: Evergreen Books.

BOYD, ANDREW C.H.

1962 *Chinese architecture and town planning 1500* B.C.-A.D. *1911.* Chicago: University of Chicago Press.

CAMMEN, S.

1956–58 Archaeological evidence for Chinese contacts with India during the Han Dynasty. *Sinologica* V.

CANDOLLE, ALPHONSE DE

1886 *Origin of cultivated plants.* (Translated from original French edition of 1883.) New York.

CHANG, KWANG-CHIH

1959 Chinese prehistory in Pacific perspective. *Harvard Journal of Asiatic Studies.* Cambridge: Yenching Institute.

COE, MICHAEL D.

1962 Costa Rican archaeology and Mesoamerica. *Southwestern Journal of Anthropology* 18, 2: 170–183.

1961–62 An Olmec design on an Early Peruvian vessel. *American Antiquity* 27: 579–580. Salt Lake City.

COOK, O.F.

1904 Food plants of ancient America. Smithsonian Annual Report for 1903: 481–497.

DE BORHEGYI, STEPHAN F.

1959 Pre-Columbian cultural connections between Mesoamerica and Ecuador. *Middle American Research Records* 2, 6: 141–156. New Orleans: Tulane University.

DENNIS, WING-SOU LOU

1957 Rain worship among the ancient Chinese and the Nahua-Maya Indians. *BIEAS* 4: 31–102.

DRESSLER, ROBERT

1953 The pre-Columbian cultivated plants of Mexico. Botanical Museum Leaflets, Harvard University 16, 6: 115–172.

EASBY, DUDLEY T., JR.

1962 Two South American metal techniques found recently in Western Mexico. *American Antiquity* 28, 1: 19–24. Salt Lake City.

EBERHART, HAL

1961 The cogged stones of Southern California. *American Antiquity* 26, 3, 1: 361–370. Salt Lake City.

EKHOLM, GORDON F.

1955 The new orientation toward problems of Asiatic-American relationships. In *New interpretations of aboriginal American culture history*, pp. 55–109. Anthropological Society of Washington, 75th Anniversary Volume. Washington, D.C.

1964 Transpacific contacts. In Jesse D. Jennings and Edward Norbeck, eds., *Prehistoric man in the New World*, pp. 489–510. Chicago: The University of Chicago Press.

EVANS, CLIFFORD, BETTY MEGGERS, and EMILIO ESTRADA

1959 *Cultura Valdivia* [Vivaldian culture]. Publicacion del Museo Victor Emilio Estrada, No. 6. Guayaquil.
NOTE: Reviewed by Donald W. Lathrap in *American Antiquity* 26, 1: 125–127. Salt Lake City.

GLADWIN, HAROLD STERLING

1947 *Men out of Asia*. New York: McGraw-Hill Book Co., Inc.

GOLSON, JACK, ed.

1962 Polynesian navigation, parts I and II. Supplement to *JPS* 71, 3 and 4.

GOODRICH, CHAUNCEY S.

1962 A new translation of the Shih-chi. *American Oriental Society Journal* 82, Oct.-Dec.: 532–544. Baltimore.

GOODRICH, L. CARRINGTON

1962 *China's earliest contacts with other parts of Asia*. George Ernest Morrison Lecture in Ethnology 23. Canberra: Australian National University.

HEINE-GELDERN, ROBERT

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Archaeological Survey of Southern Zamboanga and the Sulu Archipelago

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ALEXANDER SPOEHR*

THE Sulu Archipelago is of archaeological interest in that it forms a southern route of entry into the Philippines and in historic times was a trading center for the exchange of goods between the Moluccas, Borneo, Sulu itself, China, and mainland Southeast Asia. At the same time, it has had close relations with the southern part of the Zamboanga Peninsula, as well as with northern coastal Borneo (see Fig. 1).

Previous archaeological explorations in Zamboanga and Sulu are summarized in Beyer (1947:318–338). These had as their primary interest the recovery of Chinese and Southeast Asian trade ceramics, as exemplified by the Michigan survey (Guthe 1929) and the work of resident officials such as F. G. Roth. No stratigraphic excavations have ever been undertaken in the area.

During July and August 1967, I conducted an archaeological survey of the southern tip of Zamboanga Peninsula, Jolo, and Siasi for the purpose of locating midden sites suitable for stratigraphic excavations. This note reports on the results of the survey. Survey collections are deposited at the National Museum, Manila.

ARCHAEOLOGICAL SURVEY

Certain practical problems confront any archaeological survey of the region. The southern tip of Zamboanga Peninsula has a good coastal road system linking the principal barrios. However, the limited road systems of Basilan and Jolo link a few coastal points by roads across each island, which makes land survey difficult, while other islands in the Sulu archipelago lack road systems altogether. Consequently, survey by sea for the Sulu islands is imperative. The archaeological survey of Zamboanga was conducted by jeep; of Jolo by both jeep and water craft; and of Siasi by motor launch.

During the survey, special attention was given to locales that combined ready access to the sea, reasonably fertile agricultural land, and fresh water. This selection was based on the

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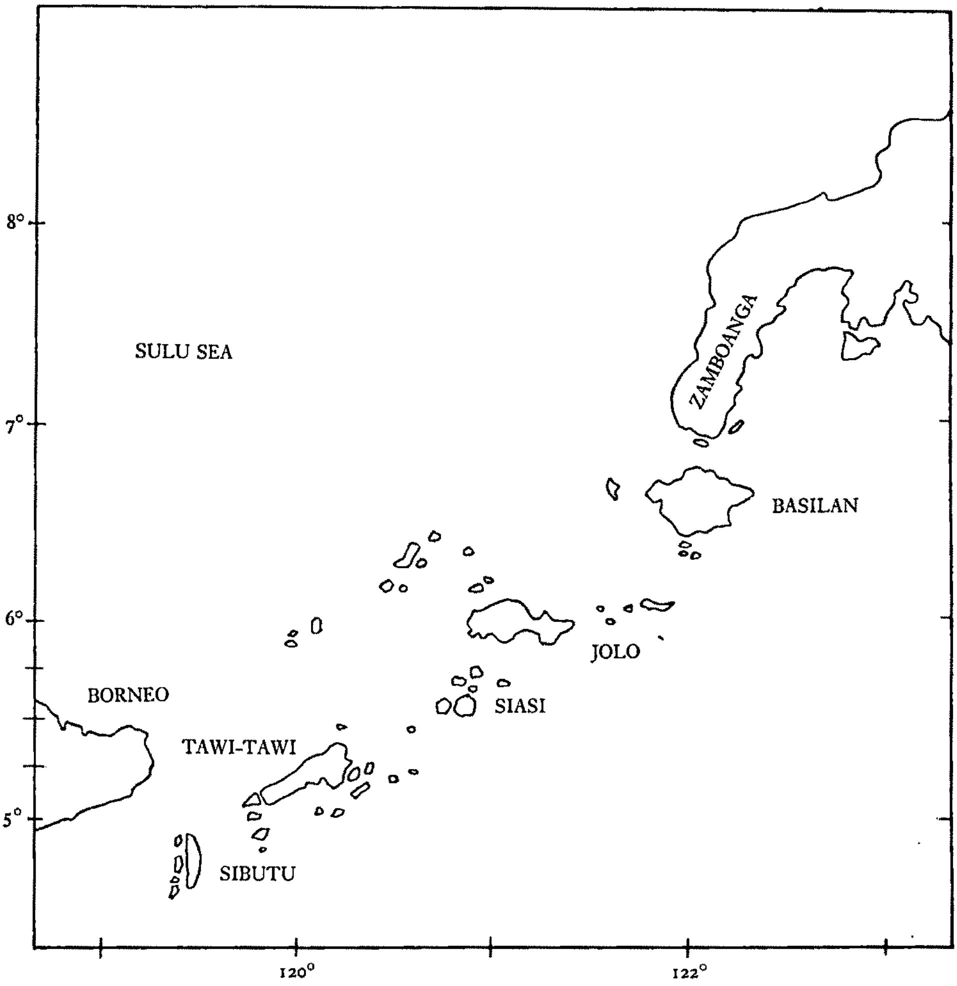

Fig. 1. Zamboanga Peninsula and the Sulu Archipelago.

premise that prehistoric nucleated settlements, if they existed at all, were based on a combined fishing-agricultural adaptation.

Zamboanga. About 70 km of coastal area along the southern tip of Zamboanga Peninsula was surveyed. The results were largely negative and suggest that nucleated settlements, at least on land rather than over the water's edge as is the contemporary Samal custom, may have only a recent history in this area. It is possible that in prehistoric times the land back of the shoreline was very thinly settled by swidden agriculturalists, most likely the ancestors of the Subanun. However, two locations deserve future strati-testing. One is Fort Pilar and the immediately adjacent area in Zamboanga City proper. Fort Pilar, whose massive masonry walls are still standing, dates from 1635, and around it grew the small settlement from which the present Zamboangueno population is derived. It may well have been the location of prior settlements. The other location is an unoccupied strand where the Ayala River flows into the sea, west of Zamboanga City proper. According to tradition, this was the site of a settlement at the time the Spanish arrived.

Along the south and east tip of Zamboanga Peninsula, a number of rivers originating in the mountainous interior cut through thick beds of limestone. In this limestone area, which rises from the coastal plain, caves have been formed. I explored 8 large caves in the barrios of Salaan, Bolong, and Bunguaio. Of these, 1 discovered in Bolong by Juan Posadas in 1919 was noted by Beyer (1947:322). It yielded only a few sherds. With one exception, a large cave in the barrio of Bunguaio, the caves explored were either too wet or had been so disturbed by guano fertilizer hunters that they offered no archaeological possibilities. More significant are rock-shelters. A very promising rock-shelter, which had evidently been used as both a habitation and burial site, was located in Bunguaio. No doubt, others exist.

Jolo. Land survey was concentrated on the Parang and Taglibi areas in the western part of the island, and a sea reconnaissance was made of the shoreline from the town of Jolo to Bun Bun along the west and north coast, and from Jolo to Maimbung along the west and south coast. Both Parang and Taglibi yielded coastal midden sites with abundant surface sherds. In addition, to judge from foundation excavations for buildings in the town of Jolo, much of the upper part of the town is built on a large accumulation of mostly trade ceramics going back at least to Ming times.

Siasi. Most of the island is fringed by mangrove swamp and there are very few coastal locations of potential archaeological significance. However, on the north coast of Siasi directly opposite Tara Island, a sherd area was discovered on a bench about 5 m above sea level. This location may be worth stratitesting.

Future survey in Sulu. Islands important for future survey include Basilan, Tawi-Tawi, and Sibutu; all present considerable physical difficulties for such an undertaking. The large and fertile island of Basilan provides today as in the past a small stream of trade porcelains from burials and deserves careful attention. On the west coast of Sanga-Sanga in the Tawi-Tawi group, an important coastal cave site yielding large shell adzes has been reported by Eric Casinõ of the National Museum (personal communication). Finally, the low island of Sibutu has a curious high hill from which trade porcelains have been obtained in the past and which should be examined. Beyer (1947:324–338) has made additional suggestions. It is important in the future to procure site samples from the entire archipelago, despite the difficulties involved.

SURVEY COLLECTIONS

Surface collections of sherds were made at all sites discovered. These sherds are described below, with particular attention to local pottery. Other artifacts found were negligible and consisted of two small, blue, glass beads (Bunguiao Rock-Shelter) and one small unfinished glass ornament (Parang).

Trade ceramics. Zamboanga and all the major islands of the Sulu Archipelago have yielded Chinese and Southeast Asian trade pieces, either heirlooms or taken from burials (Beyer 1947:318–338). In their catalog of the Roth-Hester-Beyer Sulu Collection, Hester and Roth (1936:2) comment on the high proportion of Southeast Asian, non-Chinese pieces in the collection, the high percentage of Sawankhalok ware, and the unusual number of doubtful pieces that may be of Than-Hua or Hanoi origin. During the course of my survey, I observed Chinese and Southeast Asian porcelains and stonewares taken from burials in the Zamboanga City market and in private collections in Zamboanga and Jolo.

The purpose of my own survey was to locate midden sites, and hence, I devoted no time

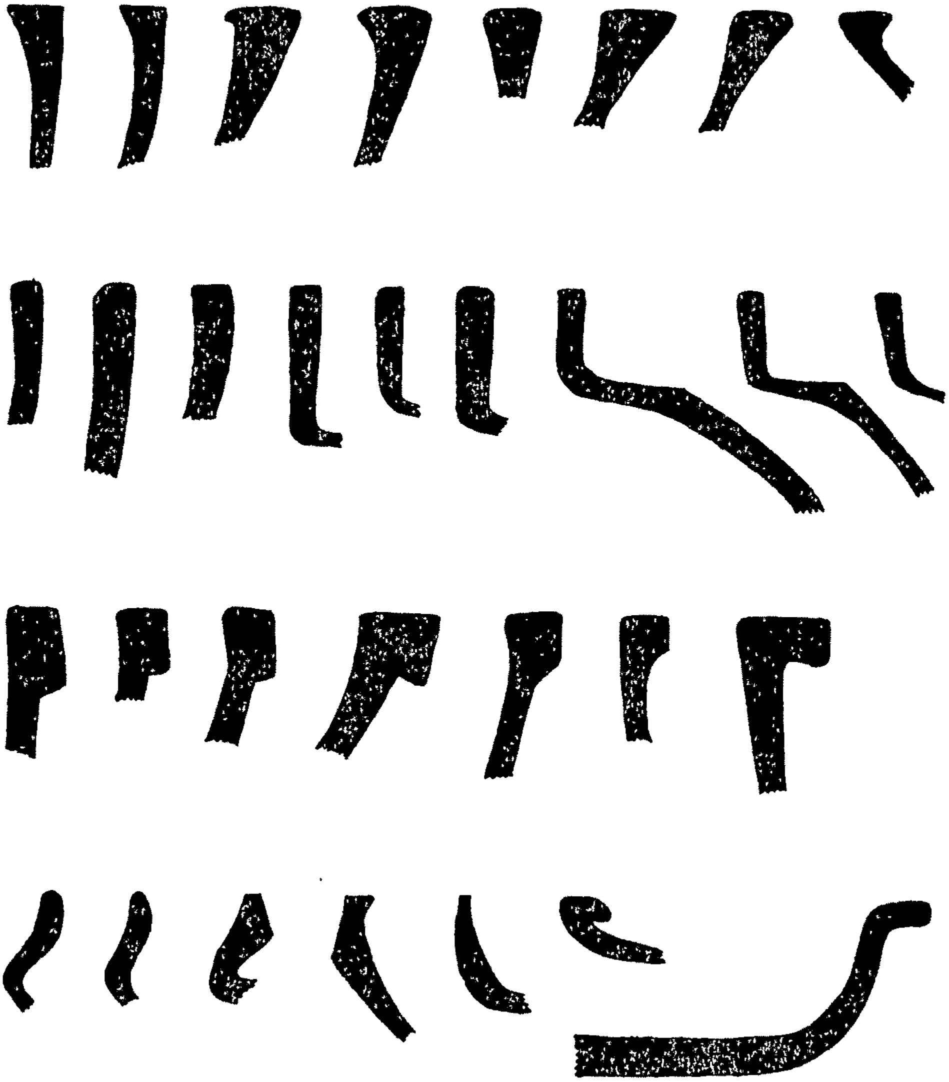

Fig. 2. Rim sections of sand-tempered pottery. Top row: expanded lip with flattened top surface. Second row: parallel sides, neck sections of bowls. Third row: projecting collar around top of rim. Bottom row: miscellaneous. Exterior surface of sherds to right.

to searching for burial areas that typically yield whole porcelains. However, at Parang and Taglibi on Jolo and at the Bunguaio Rock-Shelter on Zamboanga, a total of 150 trade sherds was found on the surface. These have been examined by Alfredo Evangelista of the National Museum. At Parang, most of these sherds are modern, but include some Ming and Ching and a number of doubtful sherds of probably Southeast Asian origin. At Taglibi, most of the trade sherds are Ching or modern. The Bunguiao Rock-Shelter yielded an interesting lot of 37 sherds, probably dating from the fourteenth to fifteenth centuries, of both Chinese and Siamese provenience.

Local pottery. As a time-space framework for Philippine archaeology is developed on the

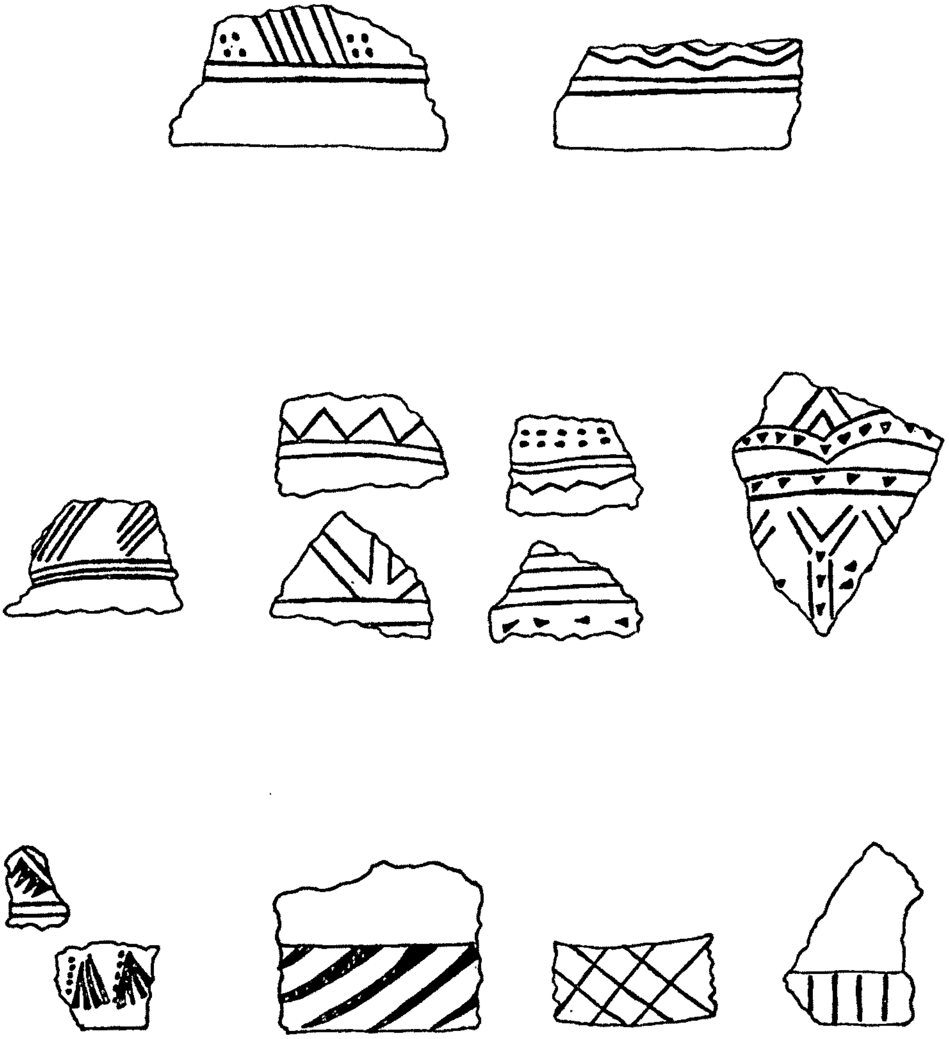

Fig. 3. Pottery decoration. Top row: sand-tempered pottery. Three left sherds show incised designs on rims with projecting collars. Second and bottom rows: incised and punctuate designs on pottery with grit temper, grit and a little sand, or no visible temper.

basis of stratigraphic excavations, much reliance will have to be placed on sequences of locally made wares, as well as on the chronological evidence provided by trade ceramics. In Zamboanga and Sulu, pottery is still being made and is relevant to any prehistoric sequence of pottery types. Before I describe the survey material, I will devote the following few comments to comtemporary pottery.

Szanton's useful account of Sulu art notes that contemporary pottery is made in Jolo, Tara, and Siminul and includes his observations on pottery-making in the latter two islands (Szanton 1963:61–63). Pottery is also currently produced at Sangali on the east coast of Zamboanga and on Basilan. The products of these manufacturing centers are sold in the principal markets of Zamboanga City and Sulu for local use. To the best of my knowledge, all pottery is made by Samal. One tends to think of pottery being associated with an agricultural people, but although the Samal do farm, they tend to be more specialized in fishing.

All contemporary pottery that I examined conforms to a single type. As Szanton notes, it is strictly utilitarian. It is unslipped and undecorated, except for an occasional piece with simple incising on the rim or on the body. Some bowls seen in Jolo have a brown-gray band, probably resin, painted around the neck. Surface color ranges from red-brown to brown-gray. The paste is characterized by a relatively large amount of fine sand temper. There is little difference between the color of the paste and of the surface. The paste is friable and unlaminated. The surface tends to erode easily. Thickness of body sherds is from 4–12 mm. Finished products include bowls with constricted necks in a variety of sizes, flat-bottomed plates, small pans with handles, stoves for cooking in houses and smaller ones used on canoes, and jars (cf. Szanton 1963).

At a future date, a thorough study of contemporary pottery-making in Zamboanga and Sulu should be made in conjunction with archaeological work. It seems probable that the contemporary, utilitarian, sand-tempered pottery represents a traditional ware of considerable antiquity.

During the survey, a total of 786 sherds of presumably local pottery was collected from five sites (Parang, Taglibi, Siasi North Coast, Bunguiao Rock-Shelter, Bolong Cave) and subjected to megascopic examination. In the following analysis, no attempt has been made to establish formal pottery types. In the absence of excavated materials, and until a numerically larger corpus of sherds is obtained, such an attempt seems premature. Instead, I have described certain technical differences that may be significant for the future determination of pottery types, their distribution, and their temporal relationships.

The most obvious differentiating characteristic in the sherd material is the nature of the paste. More than two-thirds of the sherds contain an abundance of fine sand temper. In this they are in every way similar to contemporary Samal pottery. The remaining sherds are grit-tempered, grit-tempered with a little sand, or have no visible temper at all (in the absence of microscopic examination of sherd sections). I have accordingly set up two preliminary categories on the basis of paste. A third category consists of a small sample of redware.

Sand-tempered pottery. Provenience: Parang (438); Taglibi (104); Siasi North Coast (1); Bunguaio Rock-Shelter (5); Bolong Cave (1). Total 549. The paste includes a large amount of fine sand temper. Color of paste is red-brown to brown-gray, with little color difference between core and surface. Paste is unlaminated and often friable. Surface may have a sandpaper feel, with the sand temper sometimes visible on the surface. On many sherds the surface is eroded. Thickness of body sherds is from 4–15 mm and averages from 6–8 mm. No evidence of coiling.

Rim sections (total 166) are shown in Fig. 2. The most common rim types are expanded, either inward or outward, at the lip with a flat top surface (Fig. 2, top row), or have parallel sides and are probably the neck sections of bowls with constricted necks (Fig. 2, second row). A third type, while not so numerous, has a distinctive projecting collar around the top of the rim (Fig. 2, third row) not observed in contemporary pottery.

Surfaces are unslipped and unpolished and for the most part undecorated, except for a few sherds with simple incising, or with impressed and punctate designs usually on the rim. Fig. 3 (top row) illustrates designs on sand-tempered ware.

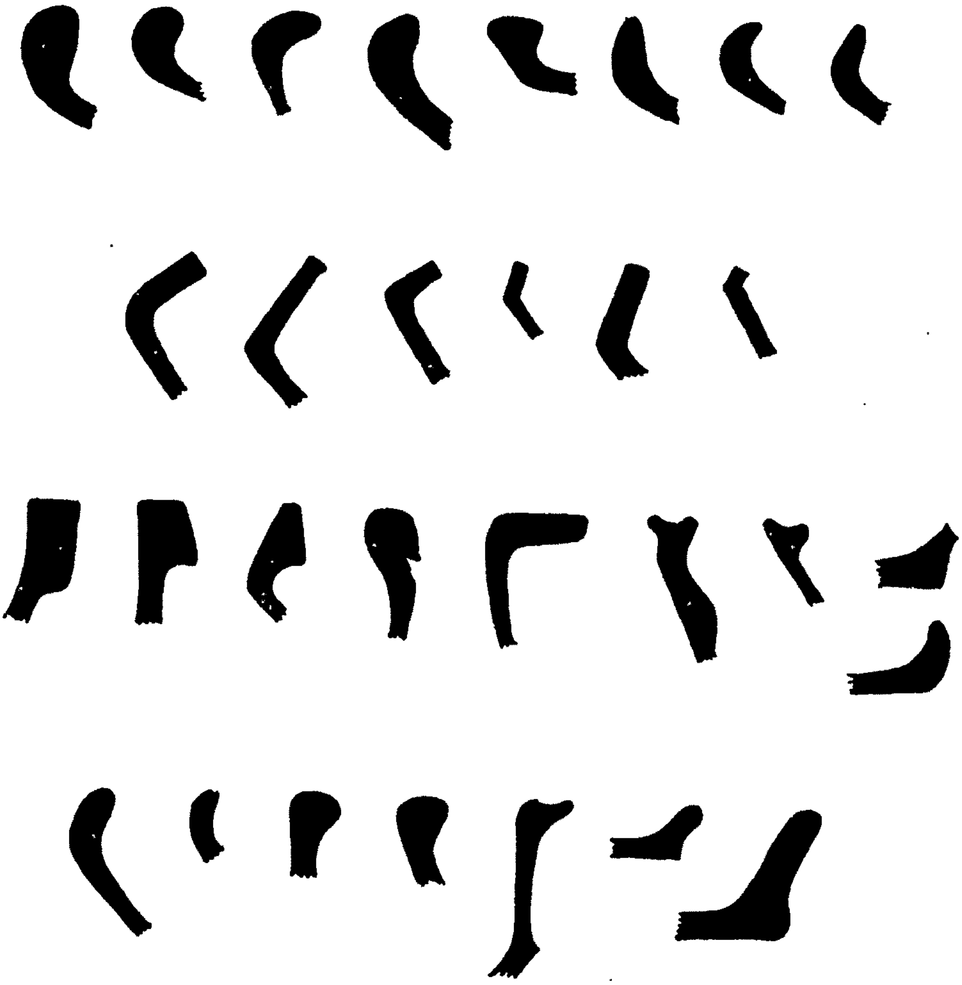

Fig. 4. Rim sections of pottery with grit temper, grit and a little sand, or no visible temper. Top row: expanded lip with rounded top surface. Second row: parallel sides with sharp angle to rim. Third row: miscellaneous. Two sherds at left have projecting collar around rim; two at right are from flat-bottomed plates. Bottom row: redware rims. Two sherds at right are from flat-bottomed plates. Exterior surface of sherds to right.

Pottery with grit temper, grit and a little sand, or no visible temper. Provenience: Parang (96); Taglibi (84); Siasi North Coast (28); Bunguiao Rock-Shelter (7); Bolong Cave (1). Total 216. This is a catchall category, and as sherds of this type become more abundant in the future, the category will have to be subdivided, particularly on the basis of a more detailed analysis of the paste than is provided here. However, this pottery is technically superior and markedly different than the sand-tempered variety. Paste includes a little grit, a small amount of grit and sand, or no temper visible with a hand glass. Color of paste is red-brown through dark gray. If the paste is dark gray, the surface color is much lighter. The paste is well compacted and the sherds are harder throughout and of better quality than the sand-tempered ware. Surfaces are unslipped and unpolished but sometimes well smoothed. Surface color ranges from light brown to reddish brown to brown-gray. Thickness of body sherds varies from 3–12 mm and averages about 4–6 mm; therefore they are generally thinner than the sand-tempered pottery. No evidence of coiling.

Rim sections (total 54) are shown in Fig. 4. The most common rim form has an expanded lip with rounded top surfaces (Fig. 3, top row). A second rim type has parallel sides, but with a sharp and well-defined angle to the rim (Fig. 4, second row). A few rims exhibit the projecting collar around the lip also found in the sand-tempered sherds (Fig. 4, third row).

Most of the sherds are undecorated, but 9 body sherds exhibit rather faint, cord-marked impressions on the exterior surface. There is an additional small sample with incised, or incised and punctate designs (Fig. 3), and 8 rim sherds have impressed notches along the exterior angle of the top surface of the lip.

Redware. Provenience: Taglibi (20); Bolong Cave (1). Total 21. The paste is tempered with a small amount of grit and is hard and well compacted. Color of paste ranges from red-brown to dark gray. Thickness of body sherds ranges from 2–10 mm, but most of the sherds are thin and less than 5 mm in thickness. No evidence of coiling.

Rim sections (total 10) are shown in Fig. 4 (bottom row). The common rim form has an expanded lip with a rounded top surface. The sherds have either a thin red slip or paint applied to the exterior surface or to the exterior and to the interior surface of the rim. They are undecorated, except for one rim sherd with parallel, horizontal, incised lines below the lip and a second rim sherd with finger impressions on the top surface of the lip.

CONCLUSION

Although midden sites proved elusive and difficult to find, particularly in Zamboanga, enough were discovered to warrant additional survey and future stratigraphic testing. The local pottery collected during the survey hardly justifies any conclusions as to temporal sequences of pottery types, other than that only sand-tempered ware is made today. However, the differences in the local pottery that was found do indicate that distinct pottery wares have existed and will be of significant aid in the eventual construction of cultural sequences for the area when actual excavations are undertaken.

On the basis of the survey material, little can be said about the relations of Sulu to other areas. It should be noted that the survey pottery is relevant to the problem of relationships between the Philippines and Micronesia. Thus Osborne (1966:81) has described a distinctive sand-tempered pottery in Palau. As a technical tradition, sand-tempering may link the Philippines with Palau, as well as with the Marianas. A similar relationship may exist in the presence of redware in both the Philippines and western Micronesia.*

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Excavations at Lapakahi, North Kohala, Hawaii Island, 1968. Richard J. Pearson, ed. Selected Papers by T. S. Newman, D. R. Connor, J. E. Peterson, G. F. Small, F. A. Winter. State Archaeological Journal, 69–2. Honolulu: Department of Land and Natural Resources, Division of State Parks, State of Hawaii, 1968. 130 pp., 12 figs., 5 tables, 4 plates, 13 maps, glossary, references. Not for sale. (paper)

Reviewed by W. AMBROSE, *Australian National University*

The five contributors to this volume are reporting a well coordinated excavation and recording project that involved a field survey of extensive and complex surface features at the old historic village site of Koaie on the northeast coast of Hawaii. The fieldwork was done by a crew of about 30 over a three-month summer season, and this 130-page preliminary report followed less than six months later.

Several thousand artifacts of early contact and historical age were recovered from two main areas under study; the coastal fishing settlement of Koaie provided the bulk of material, and an upland agricultural area inland of Koaie mainly yielded European items.

Newman, the field director, distinguishes horizontal features, such as stone walls, platforms, and other non-portable artifacts, from vertical features that are cultural strata. The horizontal and vertical features provide the matrix or context for recording all the portable evidences, such as middens and artifacts. A notable point is Newman's recording procedure that is in a form that allows direct processing of the primary field data by computer. By this means archaeologists hope to "do studies of internal correlations, functional analysis, ethnohistorical comparisons, relative dating, the development of temporal sequences, and a tentative cultural reconstruction" (p. 9).

The very short time-range and recency of the occupation, that spans the immediate pre- and post-European contact period, renders radiocarbon dating fairly useless for this site. Therefore, a great burden lies in the precise determination of the relative ages of "horizontal" and "vertical" features. Whether this has been successfully achieved will be shown in the later detailed reports. There are, in this preliminary report, inconsistencies in the interpretations of relative age that will need to be resolved if any chronological sense is to be made of the numerous stone constructions that have been recorded.

Connor's contribution accounts for half the total report and is largely concerned with the surface structures. He has suggested a typology based on constructional details of the stone walls that make up the various alignments and enclosures. Types A and B are rubble-filled walls while types C and D are walls laid in irregular courses. The most confusing conclusion in his report is the view that the rubble-filled precede the layered wall structures, a conclusion mainly based on the association of the footings of many of the rubble-filled walls with a "presumably early" "grey" layer (p. 40). The important "grey" layer is wanting in description but occurs with (p. 28) and without (p. 27) cultural debris. The association of rubble-filled walls and the grey layer needs clarification; the fact that rubble-filled walls have foundations consistently set into the ground whereas the irregular coursed variety sit upon the surface raises the question of whether the association of rubble-filled walls and the grey layer is only incidental. If Connor is to use a typology of wall construction to provide a relative chronology, it would be desirable to show that the two types had some temporal distinction, yet between 33 percent and 58 percent of the "later" layered walls are associated with the "early" grey layer (p. 40).

Small's careful reconstruction of events at a different area, about 100 meters south of the village nucleus, shows that both rubble-filled and stacked walls are present in one complex as different but contemporaneous forms well into the historic period. For the house area she studied she concludes that "It is most economical to assume that ... differences in wall styles are merely a reflection of different functions" (p. 97).

Winter's reconstruction of the sequence at the southern platform complex within the village nucleus appears to ignore completely the reasonable conclusions of Small. Winter's Phase III is the first evidence of enclosures built in the rubble-fill technique and is well within the Historic period (p. 111). The "later" Phase IV stacked walls arise from the corners of one of the house-like enclosures and on Small's criteria would simply be contemporaneous with the house. Winter presents no evidence that requires a separate phase status to the two forms of wall. It is even more difficult to understand why the phase distinction is made when "the positions of these two wall types in the relative chronological sequence for the Southern Platform Complex were identical" (p. 108). The evidence for placing the large village wall as a Phase I structure is not very convincing. "Evidence for assigning the early date to the village wall in the Southern Platform Complex is the lack of historic glass or iron fragments in the rubble pile in 2567 (one of the house-like enclosures) that is made up of stones from the village wall deposited when the jeep road was constructed." But surprisingly "Too much of feature 2567 lies buried under rock for a function to be determined for the house which once stood there" (p. 111). Why fragments of materials such as glass and metal should be carried across from the village wall, if they were present, with the relocation of the rubble in feature 2567 is unclear. It is also unclear how their absence can be confirmed when the feature remains filled with rubble.

This raises the question of whether a computer analysis can hope to compensate for contradictions in what the field archaeologist has already determined to be key data.

A small but irritating omission in this volume is the lack of organized consecutive references in the text to the page number bearing an illustration. Surface features referred to in the text have to be hunted for among the illustrations.

A final minor point. I winced at the description of the treatment of metal artifacts that were immersed in hydrochloric acid to remove rust and incrustations (p. 104). This is indeed a diabolical treatment since the acid removes the offending rust only by vigorously attacking the sound metal. The later presence of chloride on the surface and in the pores of the iron is unfortunate since it induces rusting.

Arts of China: Neolithic Cultures to the T'ang Dynasty, Recent Discoveries. Terukazu Akiyama, Kōsei Andō, Saburo Matsubara, Takashi Okazaki, Takeshi Sekino. Mary Tregear, trans. Tokyo and Palo Alto, California: Kodansha International Ltd., 1968. 251 pp., 386 illus., notes to the plates, 1 map, 2 chronologies, bibliog., selected glossary. $27.50.

Reviewed by CHENG-RUEY MA, *Human Relations Area Files, Yale University*

There has been an unprecedented boom in Chinese archaeological interest during the first fifteen years of Communist rule. The rising interest has been reflected, in part, by the quality and quantity of learned journals, monographic studies, and site reports which have appeared. To publicize this trend, the Institute of Archaeology, Academia Sinica, Peking, published *Hsin Chung-kuo te k'ao-ku shou-hou* [Archaeological discoveries in New China] in 1962. The work has been criticized, however, as falling short of its purpose because of insufficient selection of illustrations and lack of appropriate professional summaries.

To provide a more satisfactory report, Kodansha International Ltd. decided, some years ago, to publish a scholarly comprehensive review of recent Chinese discoveries. This goal was to be achieved through the cooperation of concerned Japanese and Chinese organizations. The result, published in Japanese by Kodansha from 1963 to 1965, is a set of three exceedingly beautiful volumes, each dealing with a particular aspect of Chinese archaeology. The same publisher is now offering this valuable report to Western readers through an English translation.

The work under review is the first volume of the set and is "a comprehensive examination of the most recent archaeological discoveries in China." (Taiwan is excluded.) Certain sections have been revised or enlarged by the individual authors. The translation was handled skillfully by Mary Tregear, of the Ashmolean Museum, Oxford, England (formerly of the Fung Ping Shan Museum, University of Hong Kong), who is an expert in Chinese art in her own right.

The book contains a foreword, five chapters—each by a different author, and useful appendices. Each chapter is supported by an enormous number of illustrations, fully explained by the "Notes to the Plates." The chapters are: "Neolithic, Yin and Chou—Arts of the Peasant and Aristocrat," by Takeshi Sekino, University of Tokyo; "Han to T'ang—Transition and Innovation in Art," by Takashi Okazaki, Kyushu University; "Painting—The Embellishment of Tombs," by Terukazu Akiyama, University of Tokyo; "Monumental Animal Sculpture," by Saburo Matsubara, Chiba University; and "Burial Objects—Models of Worldly Comfort," by Kōsei Andō, Waseda University. Each is a clearly written, well-organized summary of recent discoveries. The chapters are, generally speaking, concise while maintaining a professional level and descriptive without losing their analytic nature. If the shortcomings mentioned below had been eliminated, the schematic pattern and balanced approach of the volume would have made it a major work, both for serious students and enthusiastic *aficionados* of Chinese art and archaeology.

While it is admitted in the foreword that all the artifacts have been described in earlier journals and monographs, I was impressed that the authors or their assistants made many trips to China to collect data and photographs; one cannot help wondering, however, if all the artifacts not previously mentioned are unworthy of discussion. If the publisher was subjected to any hardship, political or otherwise, in attempting to present a more representative selection, he would have been justified in mentioning the fact. As it is, this selection is not truly representative.

Granting the differences in approach in Eastern and Western scholarship, I was still surprised, in several instances, to note the support given to theses that are no longer acceptable. For example, Yanshao ts'un in Min-sh'ih (p. 13) is a typical Lungshanoid site, instead of an example of Yangshao culture as was previously thought. (cf. Kwang-chih Chang, *The Archaeology of Ancient China*). I was left with the feeling that the author of this chapter still accepts J.G. Anderson's outmoded theory of six stages of Yangshao culture. Similarly, in using Chinese sources, the authors seem to have adopted preliminary reports indiscriminately. For example, contrary to initial observations, the so-called "storyteller earthenware" (Plate 287, Note p. 233) has nothing to do with the art of story-telling (see Chao Chün-hsien, *Wen-hsüeh i-ch'an tseng-K'an* [Supplement to the literary heritage] 10: 102–107). Instead, the figure probably represents a certain type of musical entertainer. There is no convincing evidence that it is a storyteller. Cases such as this one abound throughout the book.

The physical format also leaves much to be desired. In the first place, the chapters are of very uneven length. The question naturally arises whether the 5-page chapter on monumental animal sculpture is a comprehensive study of the subject. Also, the division of subject matter between the chapters is ambiguous. The chapter on burial objects, for example, overlaps in many places the material covered in other chapters. Perhaps "Grave Miniatures" would be a more suitable title for this chapter.

The citation system is not consistent, nor is it arranged in an orderly fashion. The reader who wishes to use the bibliography as a research guide will be disappointed. Correlating the Chinese titles in the bibliography with the free English renderings in "Notes to the Plates" for the first chapter is difficult, if not impossible, because the bibliography is incomplete, and some of the free translations are incorrect. "Notes to the Plates" for the other four chapters are in Chinese characters. Furthermore, only the text of the chapter "Han to T'ang" carries explanatory notes. I hope this inconsistency will be corrected in the forthcoming volumes of the series.

Despite the defects, I have no hesitation in recommending this beautiful volume to the art lover. Its scope is so wide that anyone will find something in it to suit his taste. Although, as an authoritative reference, the work needs improvement, one can hardly expect to find more helpful information in any single volume.

Growth of a Prehistoric Time Scale: Based on Organic Evolution. William B. N. Berry. San Francisco and London: W. H. Freeman and Company, 1968. viii, 158 pp., bibliog., 16 figs. U.S. $5.75.

Reviewed by CHRISTOPHER J. DURDEN, *Texas Memorial Museum*

Surprisingly, for a book on palaeontology by a palaeontologist, there is no mention in this book of any fossil species, and only eight genera are mentioned, these only in figures 15 and 16 and their captions. One does expect to see examples of known fossil sequences of the caliber of Rowe's 1899 and Kermack's 1954 studies of the detailed evolution of the Cretaceous sea urchin, *Micraster*, or of Kaufmann's 1933 work on speciation in trilobites of the genus *Olenus*. The expounding of principles and the history of their development is somewhat tedious and often unconvincing in the absence of at least synopses of the evidence that would allow the reader the illusion of coming to the same conclusions himself. Similarly, there is not one illustration of a fossil in the whole book (although the dust jacket bears pleasing line drawings). This lack of documentation with *evidence* (references to the literature are adequate) unfortunately is a reflection of a return to scholasticism evident in an increasing number of modern textbooks. Unfortunately, the assumption that students are bored by facts and are as enamoured with principles as are the proponents and disciples of these principles, leads towards teaching principles without evidence. This approach postpones the students' opportunities to develop personal reasoning ability until they have learned the theories of the day. Certainly this situation is not conducive to intellectual innovation.

The ten chapters of the book touch upon most aspects of using fossils to determine the relative age of rocks. For the anthropologists' benefit, there is no discussion of the use of fossils for dating the Pleistocene and very little concerning the later Tertiary. The strength of the book must rest on its summary of principles and their developmental history.

In chapter 1, "A Need for a Time Scale," I could find nowhere a statement of the need or utility for a relative time scale—only statements that geologists have felt such a need. There is no mention here of the so-called absolute time scale which, at face value, often appears to the non-stratigrapher to replace the relative time scale of the palaeontologist in usefulness. The second chapter, "First Principles," is a discussion of the concepts of uniformitarianism and superposition, although no reference is made to the recent symposia on the former subject. Chapter 3 reviews the attempts at division of the stratigraphic sequence and is a discussion of the origin of early theories of stratigraphy. The impact on stratigraphy and correlation of the theory of facies is not dealt with adequately. Chapter 4 summarizes some aspects of Darwin's contribution to the concept of organic evolution through natural selection, from a neo-Darwinian viewpoint. The growing front of "post-neo-Darwinian" theory, embracing population biology and evolution, which has developed in the past five years, is totally ignored (see Richard C. Lewontin, ed., *Population Biology and Evolution: Proceedings of an International Symposium, Syracuse, N. Y., 1967*. Syracuse: Syracuse University Press, 1968). The synopsis of the history of students of evolution ignores some of the prominent thinkers who hold divergent viewpoints, such as Huxley, Haldane, Fisher, de Chardin, Mayr, Anderson, Cain, Michurin, and Dobzhansky. Chapter 5, "A Maelstrom of Opinions, Faunal and Floral Succession," considers the history of ideas of the use of fossils to tell age. A graphic presentation of the actual record of organic evolution including the endeavours of Haeckel and, more recently, of Stormer would have been appropriate here, but again there is no mention of the evidence of even those topical discoveries that had profound influence on the development of theories. Chapter 6, "Growth and Development of the Periods," is a brief historical review of the origin of the names of the periods now used. The history of the controversial boundary disputes over the end of the Palaeozoic and the end of the Mesozoic are not mentioned. Chapter 7, "Lyell's Percentages," does not recognize the lack of precision inherent in correlation using Lyell's method, a feature seemingly forgotten by many palynologists. Chapter 8, "An Overview of the Earth's Fossil Record," is, again, not a presentation of the actual biotic sequence but only a brief mention of the larger time units now commonly used. The Precambrian is discussed without reference to recent advances in stratigraphy in Canada and Australia, and no mention is made of the important and topical Precambrian fossil occurrences. Chapter 9 is concerned with boundaries in time, with laudable emphasis on the importance of the study of detailed ranges of species. A brief discussion of the species concept under the gradualism hypothesis of the neo-Darwinians follows. There is thus no reference to problems of speciation in asexual and plant-like organisms and no mention of non-gradualist views, such as those of Swann, 1947 ("The *Favosites alpenensis* Lineage in the Middle Devonian Traverse Group of Michigan." Ann Arbor: University of Michigan, Contributions of the Museum of Palaeontology VI, 9: 257–270), Flower, 1954 ("Saltations in Nautiloid Coiling." *Evolution* IX, 3: 260), and Stern, 1956 ("Stratigraphy and Palaeontology of the Interlake Group and Stonewall Formation of Southern Manitoba." Geological Survey, Canada, Memoir 281:54–71). Nor is any mention made of narrowing down the possible ages of boundaries in the relative scale by bracketing them with radiogenic dates and palaeomagnetic data from the physical and chemical time scales; that is, there is no interdisciplinary synthesis. Chapter 10, "Marker Points and Correlation Web," is perhaps the most revealing part of the book, for it suggests how little biology is actually appreciated by many palaeontologists. Thus, the author presents a recitation of the dogma that genetic species must be used by the palaeontologist . . . without consideration of the hypocrisy implied by the present unattainableness of any genetic knowledge about fossils.

I found particularly disturbing the peculiar use of the term *aggregate* that appears to represent the aspect of the world fauna of the time, without particular consideration of its parts. There is rather poor coverage of the provincial aspects of faunas and no mention of Palmer's 1965 valuable concept of biomeres. The author makes little reference to vertebrate fossils and absolutely no mention of the finest facies-transgressive fossils of all; wind-distributed pollen and spores. This book, which could have been written more than twenty years ago, is recommended for casual reading. It is not recommended for students outside the field of palaeontology, who can find this information more systematically presented in such textbooks as J. M. Weller's *Stratigraphic Principles and Practice* (Harper, 1960, Chapters 2, 3, 7, 12, 15) or in a recent introduction to palaeontology, such as A. Brouwer's *General Palaeontology*, (University of Chicago Press [1959], 1967 translation). It is regrettable to see yet another book on palaeontology without fossils.

The Old Stone Age. François Bordes. J. E. Anderson, trans. World University Library. New York and Toronto: McGraw Hill Book Company, 1968. 225 pp., 10 color and 31 black-and-white photographs, 382 line drawings, 11 color maps. U.S. $2.45.

Reviewed by CHOSUKE SERIZAWA, *Tohoku University*
Translated by KAZUE and RICHARD PEARSON, *University of Hawaii*

François Bordes, who plays a leading role in the study of the European Palaeolithic, has completed a general book on the Palaeolithic from a worldwide point of view. This publication has been translated from French to English. For us who are studying the Palaeolithic of East Asia, far from Europe, it is a long-awaited publication. The first feature that one notices in the book is the introduction of fresh materials with many clear diagrams and photographs. By just glancing through the illustrations, one can gain an appreciation of the author's meticulous care.

In the first chapter, "The Geological Framework," the natural environment of the Quaternary, which is the living stage of the Palaeolithic, is covered. The author handles "The Methods of Dating and Study," in the second chapter where he emphasizes the great importance of stratigraphy. He also covers the methods of excavation with great attention to details. In the comparison of industries, he introduces consecutively the archaeological method, palaeontological method, pollen analysis, radioactive carbon method, and the potassium argon method. Typology and technology, which are as important as stratigraphy, are discussed in the last section of this chapter. Qualitative criteria, emphasized in characteristic types, are now things of the past. He gives an example of modern statistical method using quantitative comparison that is now being applied with great success.

In the third chapter, he takes up both Africa, the cradle of mankind, and the history of research on *Australopithecus*, which is now dated at 1,850,000 years ago, mentioning their physical anthropological characteristics, living patterns, and food. He also inquires into whether they started to make tools. He introduces the most recent studies of Olduvai Gorge, and L.S.B. Leakey, who offer the most important materials. However, Bordes points out in the case of Europe and Asia, that because there are fragmentary reports of the existence of human remains in strata which are comparable to the Upper Villafranchian, one cannot say definitely that human beings originated in Africa; therefore, the author uses the term "cradle on wheels."

From the fourth to the seventh chapters, the Lower Palaeolithic is described. At first, the industry that is characterized by hand axes in Europe, Africa, and Asia is described; then the flake and chopper tool complexes of various places in Asia and Europe that do not have handaxes are described. Peking man of Choukoutien; Vertezollos of Hungary (which has recently been discussed); and Clacton of England (which has been clarified by the reexamination of H. Warren) are covered in detail.

In the eighth to eleventh chapters the Middle Palaeolithic is discussed. Various types of Mousterian in Erance and the Mousterian of other places in Europe are described in detail. Then the Mousterian stage of Africa and Asia is described, and finally, a restudy of the assemblage from Shui tung kou in China is presented.

The author's treatment of this last assemblage gives the impression that it evolved from the Mousterian as the Mousterian made the transition to the Upper Palaeolithic. In the eleventh chapter, Bordes comments on material covered in the fourth to the tenth chapters, and discusses: whether *Australopithecus* was a tool maker; the reasons for the existence of two streams in the Lower Palaeolithic; the appearance of the soft hammer technique; the question of the origin of the Levallois techniques; the development of Acheulian stone tools; wood and bone tools; questions of clothing; the four main parallel lines of the Mousterian complex; the population of the Mousterian; burials, dwellings, ceremonies and the use of color; and other interesting facts.

In the twelfth to the nineteenth chapters, Bordes writes about the Upper Palaeolithic that was widely distributed in Europe, Asia, Africa, Japan, Australia, and America. The résumé of the situation in France, where research is advanced, provides especially useful reference material. In the nineteenth chapter, the author outlines the Upper Palaeolithic period discussing the development from the Middle Palaeolithic to the Upper Palaeolithic and the interesting problem of the transition from Neanderthal to modern man. From 40,000 to 35,000 years ago in the Old World, evolution occurred at different times and at different places. In this connection such areas as the migration of the new form of man from the Old World to the New World; the problem of convergence in leaf-shaped points and other artifacts; problems of diffusion and influence; population estimates for the time of the French Magdalenian; sedentism of Palaeolithic man; as well as dwellings, salmon fishing, complex weapons, bows, and the appearance of the knowledge of the calendar, are discussed.

In Bordes's description of the Palaeolithic of East Asia, which relates to our specialty, there are some misunderstandings, probably caused by difficulties in obtaining the literature. Regarding Locality 1 of Choukoutien, the author has written that the stone tools which occur in the accumulated layer that is 50 m thick from top to bottom show no typological variations. But according to Chia Lan-po (1964), the artifacts of the lower strata (tenth to eighth layers), the middle strata (fourth layer) and the upper layer (third layer to the first) show recognizable changes in the techniques and in the overall assemblages. Also the tools of the upper layer of Locality 1 compare with the artifacts of Locality 15. In addition, No. 2 and No. 3 in Figure 27 (p. 85) are described as artifacts from Locality 1, but both of these are from Locality 15. Moreover, in relation to the chronology of Ting Ts'un, Wen-chung Pei recently has mentioned that it can be related to the Würm glaciation and that Sjaraosso-gol is close to the Aurignacian-Magdalenian of Europe. Also, Pei has mentioned that Ordos man is strongly equipped with the characteristics of *Homo sapiens*.

Finally, a word about the Japanese Palaeolithic. Reliable remains from the Lower and Middle Palaeolithic are increasing, and the blade industry is not only distributed in Hokkaido, but is also widespread in eastern Honshu. The chronology of the latter is about 18,000 to 15,000 B.P. After that, the microblade industry (15,000 to 13,000 B.P.) follows, with tanged points continuing through this period. I should also mention that the beginning of pottery manufacture occurs at about 12,000 B.P. in Kyushu.

The Archaeology of North Kona. Section I: Archaeological Surface Survey. Francis Ching, Jr. and Paul Rosendahl. State Archaeological Journal, 68–1, Honolulu: Department of Land and Natural Resources, Division of State Parks, State of Hawaii, 1968. No price given.

The Archaeology of North Kohala. A Progress Report on Archaeological Research. T. Stell Newman. State Archaeological Journal, 68–2. Honolulu: Department of Land and Natural Resources, Division of State Parks, State of Hawaii, 1968. No price given.

Reviewed by EDWIN N. FERSON, JR., *University of Arizona*

These two brief publications seem to represent the beginning of a new state-supported series which, presumably, will deal with the archaeological activities of the Division of State Parks of the Department of Land and Natural Resources of the State of Hawaii. As such, the term "journal" in the series title, *State Archaeological Journal*, appears to be employed in the sense of a record of archaeological activities by the division, rather than in its more customary sense of a periodical. The format of the new series is adequate and the choice of cover color and layout altogether pleasing. Whether librarians will appreciate the loose plastic ring binding and the numbering system, which employs the last two numbers of the year in which an issue was published, followed by the numerical order of issuance within that year, is a moot question. In any case, the fact that the Division of State Parks is taking the lead in Hawaii in publishing its current archaeological work is to be applauded by all.

The first of this series, by Ching and Rosendahl, is especially helpful in giving "outsiders" a quick look at the archaeological survey methods and site designation techniques being employed by the State of Hawaii. The fact that the accompanying survey map indicates sites by only their temporary field number suggests that many procedural decisions must be made to foster unity in Hawaiian archaeology through uniform final site designation. Although a glossary of Hawaiian terms mentioned in the text has been thoughtfully inserted, the use of colloquial expressions such as *mauka* for inland and *makai* for seaward, as well as a few other terms that have perfectly sound English equivalents, is somewhat annoying. Unfortunately, this practice is characteristic of many Polynesian archaeological publications which, if adopted by all archaeologists, would clutter the literature with needless expressions in a hundred different languages.

Archaeologists will be especially interested in the highly successful use by Ching and Rosendahl of a helicopter in conducting their survey over lava fields. Of equal eye-opening interest, especially to salvage archaeologists, will be the proposed budget for salvage excavations, which calls for a total of only eight working days for a staff of two in order to excavate a total of eight sites, one of which is estimated to cover an area of at least two acres!

The second report in this series, by T. Stell Newman, provides a brief but lucid description of excavation techniques in an old Hawaiian fishing village at Koaie, on the North Kohala coast of the island of Hawaii. The principal broad problem being investigated is the nature of the interdependence of the upland, agriculturally based peoples who lived immediately inland from the fishing village and those of the village proper. Since Newman has already determined that the site extends from prehistoric into historic times, the importance of the excavation takes on still another dimension, for the site has the potential of providing insight into the first effects of European contact on a pristine Hawaiian village. Hopefully, results of this important excavation will be reported in full in the near future.

The Indianized States of Southeast Asia. G. Coedès. Walter F. Vella, ed. Susan Brown Cowing, trans. Honolulu: East-West Center Press, 1968. xxi, 403 pp., maps, notes, index. U.S. $12.00

Reviewed by SHIGERU IKUTA, *Toyo Bunko, Tokyo*
Translated by RICHARD PEARSON, *University of Hawaii*

This book is an English translation of Professor G. Coedès's *Les Etats hindouisés d'Indochine et d'Indonésie, Nouvelle edition révue et mise à jour.* It does not treat the entire area of Southeast Asia but deals with specific domains. The author's term Farther India is defined as comprising the following countries: Indonesia or island Southeast Asia except for the Philippines and the Indochinese peninsula, or India beyond the Ganges. Excluded are Assam and northern Vietnam, whose history is said to have developed outside of Indian influence (p. xv). The publication consists of an introduction, fifteen chapters, and a conclusion.

The author places a decidedly high evaluation on Indian civilization, whose influence was felt in Farther India. In the conclusion of his book, Coedès enumerates concrete examples of these influences. In contrast to what we might expect, his evaluation of the influence of Chinese civilization (p. 34) is negative:

> The Chinese proceeded by conquest and annexation; soldiers occupied the country, and officials spread Chinese civilization. Indian penetration or infiltration seems almost always to have been

peaceful; nowhere was it accompanied by the destruction that brought dishonor to the Mongol expansion or the Spanish conquest of America. Far from being destroyed by the conquerors, the native peoples of Southeast Asia found in Indian society, transplanted and modified, a framework within which their own society could be integrated and developed.

There are areas in which justification for this approach is a problem. First, in Farther India, as defined by the author, there is not one case of Chinese conquest or annexation. If he is thinking of the whole of Southeast Asia, the author actually overlooks the simple reality that the ocean cuts off and separates India from Farther India, while China and Southeast Asia form a continuous land mass. In addition to this, Coedès omits the fact that between India and Burma there is a virtually impassable mountain range. From the geographical point of view, the relationship between China and the Indochinese peninsula, in other terms North China and South China (the so-called Ko-nan area), should be compared to the relationship between north and south India. One aspect of south India and south China and the Indochinese peninsula is that both endured military conquests and even assimilation through immigration of the conquerors. If one disregards this point, one cannot deal with the real nature of the influences of Indian and Chinese civilization in Southeast Asia. Next, there are problems relating to the time periods involved. Chinese immigration to Farther India was very late, occurring up to the ninth century A.D. Moreover, at the time when the Chinese immigrated, I think that the area had already felt strong influence from India. Also, China itself, in the form of the adoption of Buddhism, had experienced early influence of Indian civilization. What, then, is the reason for the development of local distinctive cultures under the influence of Indian civilization? The author's most basic premise lies here. Coedès tries to use the concept of Indianization to explain the development of distinctive cultures. However, he uses the term Indianization without defining it adequately. There seems to be a need to divide Indianization into two terms, Indian expansion and Indianization. In reality, Indian *expansion* means the actual immigration of Indians to Farther India. The author states that *Indianization* was not a historical fact clearly delimited in time and space, but lasted for several centuries over a vast region, and involved successive waves and local currents from different places (p. 32).

The manner of Indian expansion, through the immigration of Indian traders that began before the Christian era and lasted for several centuries is mentioned in detail. From about the third century B.C., traffic between Western Asia and India increased. Even inside India, the mercantile community had begun to develop. Also, although the author does not give it special mention, Ch'in Shih Huang Ti extended his control to Kwangtung and Kwanghsi. In 111 B.C., Wu Ti of Han placed the area under his direct control. At the time, the Chinese had not yet moved overseas but had moved to the coastal areas. One reason for their moving toward the sea in this area was their desire to control directly the overseas trade. In addition to giving some indication of the flourishing nature of maritime trade, I think the movement is an indication of the flourishing nature of Chinese immigration into South China itself. At the same time, there is also a strong possibility of retracing evidence of the movement of Indian traders from about that period. In the words of the author, it is mentioned that the gold currency embargo of Vespasian led to the Indian traders' search for the Golden Khersonese. There is no doubt that this search was one of the causes, but above that, the movement of the Chinese to the coast seems to me to be a more important factor in attracting the Indian traders.

Coedès, in the first part, describes the Indian expansion in terms of the First Indianization (pp. 16–19, 36–45) and the Second Indianization (Chapter IV, pp. 46–64). The Second Indianization occurred in mainland Southeast Asia about the middle of the fifth century. It is attributed to an influx of immigrants, or at least to the influence of cultural elements that may have come from eastern and southern India (p. 55).

In my opinion, this influx is also part of the Indianization mentioned by the author (pp. 15–16), who states that:

> Indianization must be understood essentially as the expansion of an organized culture that was founded upon the Indian conception of royalty, was characterized by Hinduist or Buddhist cults, the mythology of the *Purānas,* and the observance of the *Dharmaśāstras,* and expressed itself in the Sanskrit language. It is for this reason that we sometimes speak of "Sanskritization" instead of "Indianization."

These Indian influences were again, according to the author, in the form of cultivated elements carried to Farther India by voyaging (p. 20). Or were these the voyages (p. 15) of "educated elements capable of spreading the religions and arts of India and the Sanskrit language"? One aspect of this theory of Indianization is that the peoples of the various countries of Farther India went to India and had many opportunities to be exposed to elements of Indian civilization—the importance of such exchanges is correctly pointed out by the author (p. 26). If the theory mentioned above is accepted, Indianization means Indian intellectual colonization. Indian civilization could have been transmitted to Farther India by these travelers; on the other hand, it is a fact that in the case of Chinese civilization, the intellectual colonization of Farther India by the educated elements did not take place.

For understanding the relationship of mainland Southeast Asia and China, as mentioned before, the author's interpretation of intellectual colonization as the continuation overseas of Brahmanization is remarkably inappropriate. For example, Brahmanization in southern India, or the Sinicization of North Vietnam, occurred with changes in social organization or acculturation, but in the case of Farther India, it was definitely the diffusion of the knowledge of organized culture that took place through intellectual colonization. While the intellectual colonization took place, the selection of components of culture occurred naturally.

In the transmission of these components of Indian civilization, the "magic and religion, with the art that expresses them" (H. G. Quaritch-Wales, *The Making of Greater India,* 2d rev. and enlarged ed. London, 1961, p. 227) were some of the elements that were received into every region. If Sanskrit, which is the sacred language used for the expression of magic is added, then Quaritch-Wales's citation would be more complete. On this point, the author's analysis is not very accurate. For example, the author says no more than the following (pp. 100–101):

> In the Indianized kingdoms of Southeast Asia, the Hindu cults developed even further a tendency they had already shown in India and eventually became royal cults.

Here we can see the limits of his analysis. When we look at this point, Chinese civilization, which developed from the rejection of this magic and religion, was not propagated in the countries of Farther India; there must be reasons for those countries' failures to adopt Chinese civilization.

The history of the kingdoms that received Indian intellectual colonization or Indianization is discussed in detail from Chapter II to Chapter XIV. Inscriptions and Chinese historical materials including local histories are accurately compared; moreover, in Coedès's analysis many people's views are synthesized; the content of this description is reasonable, and extreme interpretations do not occur. The chapter's chronological arrangement can be termed horizontal; for each period, chapters cover the various areas. The author has drawn up this arrangement himself (p. xxi). The description of Cambodia is particularly detailed; however, looking at the overall work, in comparison with the use of epigraphy and local records, the investigation of Chinse source materials by the author is by no means adequate. Particularly the *Sung Hwei Yao* and the *Ming Shih Lu* are lacking in exposition. Historical materials not translated into Western languages are totally neglected. This lack is an unavoidable drawback of this grade of Western studies in this field. In this regard, Japanese scholars have more or less responsibility, since their studies are often adequate but are not expressed in English sufficiently.

Although it has already been mentioned in an earlier section, the author's knowledge of the relationships between China and Farther India is not necessarily clear. He states (p. xviii) (my italics):

> *The Chinese never looked with favor on the formation of strong states in the southern seas,* and it is a fact worth nothing that the periods of the greatest strength of Funan, Cambodia, and the Javanese and Sumatran kingdoms correspond in general to the periods of weakness of the great Chinese dynasties.

It is difficult to regard the italicized portion as an actual problem. In the case of the Chinese historical dynasties, the Southeast Asian countries were no more than tribute-bearing subordinate states, and there were actions similar to warnings against mutual aggression, but beyond this there was no actual action. International policy in this aspect was devoted at that time to the maintenance of the status quo.

The author mentions that one of the circumstances that aided the initial Indian expansion was the development of the Chinese and Indian navies (p. 20), but this assumption is a mistake when it is applied to the Chinese situation. I believe that Chinese overseas emigration did not begin until the ninth century or later. I believe, in some aspects, the downfall of Funan is related to conditions in China. In reality, the period of prosperity of Funan was the third century to the middle of the sixth century, after the destruction of the later Han (that corresponds to the Northern and Southern Wei-Chin dynasties from about 200–589); this was the period of the first movement of actual Chinese into the Ko-nan area. Further, the period of decline of Funan (from mid-sixth century to the end of the seventh century) corresponds to the initial period of the T'ang Dynasty (6–712). During this period, 87 tribute missions from countries in Southeast Asia arrived, implying that the central area for trade moved to China from Funan. I believe that each country, according to direct negotiations with China, along with receiving wealth, absorbed the culture of Funan, and gradually became more powerful. I wonder if this is the "dismemberment of Funan" indicated by the title of Chapter V.

The period from the eighth century to the end of the thirteenth century is one in which Chinese trading ships as well as Arab-Persian trading ships were engaged in commercial ventures overseas. This period is also the period of the height of the Indianized kingdoms in each area. Already foreign traders were doing business with these kingdoms, whose economic characteristics, which are features of later states in Southeast Asia—agricultural base with trade dominated by foreigners—might have had their formation in this later period. The Chinese formed concessions in various places even though they did did not contribute to the diffusion of Chinese civilization. In the early years of the thirteenth century, a major change took place among the Indianized kingdoms. The author has covered this topic skillfully in a separate book, *The Making of South East Asia* (London, 1966, pp. 121–134). The fact that during this period, in 1190, Singhalese Buddhism was transported into Burma, and in 1290, Islam spread into Sumatra is of great interest. In the case of the Indochinese peninsula, the immediate cause of this change began about the middle of the twelfth century; the enlargement of the dominions was achieved by Jayavarman VII (1181–ca. 1218). After 1190 Jayavarman VII overcame Champa and controlled it until 1220; he also achieved control over Burma on the west and on the north, even as far as Saifong on the upper reaches of the Mekong River (pp. 171–172). Through his power, he extended

Khmer influence to the Thai tribes in the area. Also, the Thai leadership, in attempting to resist the Khmer advances, developed into small states. On the one hand, in the case of island Southeast Asia, the liquidation of Srivijaya (pp. 178–180, 183–185) and the destruction of the Siamese kingdom of Kadiri left a lack of firm government that continued until 1286 when the kingdom of Sinhasari was established. Sumatra is included in the area termed "colonial Indian" (Quaritch-Wales, p. 32). The way in which a "colonial substratum" in the culture of Singhasari was restored shows that in the thirteenth century Indian intellectual colonization was probably at least interrupted.

The Mongol conquests that took place in 1280–1290 were a decisive factor in creating this kind of change. In concrete terms, this is shown in the downfall of 1287 of the Pagan Kingdom and the establishment in 1293 of the kingdom of Majapahit. In the case of the former, it was through the Thai tribes in Burma that the formation of the government was possible, while in the case of the latter, the superiority of Java was established in Southeast Asia. In spite of the author's last two chapter headings (Chapter XIII, The Decline of the Indian Kingdoms, First Half of the Fourteenth Century, and Chapter XIV, The End of the Indian Kingdoms, From the Middle of the Fourteenth Century to the Seizure of Malacca by the Portuguese in 1511), the period of the end of the Indianized kingdoms that I have mentioned should actually stop at the end of the thirteenth century.

From the late fourteenth century to the fifteenth century, various changes took place in Farther India. These are not only the establishment of the Thai kingdoms in the Indochinese peninsula (pp. 218–219) and the inroads of Ayudhya into the Malay Peninsula and Sumatra (pp. 230–231). Also, the stage of colonizing movements to the northern part of Sumatra from such places as southern India and Bengal had begun, and southern Sumatra with Palembang as the center came under the control of the Cham Majapahit of Java; moreover, their control also extended to the Malay Peninsula. Between 1445 and 1455, the various surrounding countries that were temporary vassals rejected the invasions of Siam; Javanese influence in the Malay Peninsula was established as being firmly supreme. (In relation to the author's description relating to Malacca (pp. 225–226), I have a definitely different opinion, but I will not mention it here for lack of space).

In this kind of process of change, how many external factors were operating? One of these is Chinese expansion. The occurrence in China of the summoning of foreign envoys that took place at the same time as the Chinese expansion and conquest strongly affected each country. Through the custom of sending envoys or using the power or authority of China, each country tried to consolidate its sovereignty. Tribute was used as a means of obtaining useful trade. In each area the Chinese developed trade concessions, and for diplomatic documents, Chinese characters were used. For this reason, the author made the following statement (p. 235):

> It is significant that the regrouping of the small states within the spheres of influence of these two great powers took place just at the time of the beginning of the decline of the Mongol dynasty, which had followed the opposite policy of encouraging the creation of numerous small principalities whose obedience was easier to maintain.

The statement seems unreasonable. This is because originally in the historic kingdoms, the policy with this intent did not exist. Rather, each country in Farther India decisively made use of China's political sovereignty. Malacca, Siam, and Java together dispatched missions to China, trying to maintain a profitable position in that changing period. Especially the establishment and development of the kingdom of Malacca cannot be considered without the background of China, which is manifested in the Western expedition of Cheng Ho. In this conflict, the newly arrived religion was used: for instance, in mainland Southeast Asia, Singhalese Buddhism, was used and in island Southeast Asia, Islam was important. Through the adoption of Islam as the guiding principle on the occasion of the resistance of the kingdom of Malacca to Siam, Islam became fixed in the Javanese world. These two religions were not necessarily received because of their popularity among individuals; in the process of the establishment of new states, we must pay attention to the point that in achieving this establishment, the religion was adopted as a guiding principle. The adoption of this guiding principle in the cases of Hinduism, which was brought by Indianization, and Mahayana Buddhism, both of which possessed aristocratic characteristics, made it easy for the centralized power within the country to pass to the masses. Those kingdoms that could not achieve this innovation had a decisive downfall. The fact that they adopted Singhalese Buddhism or Islam meant that in the countries of Farther India, no popular religion was born from the royal cults. This indicates clearly that Hinduism, and Mahayana Buddhism, which became the royal cults, had a freezing effect on the culture or some aspects of it (cf. Quaritch-Wales p. 12); also, I think that this was one of the aspects of Indianization.

The above point is one of many where I think that the author has considerably overemphasized the merits of Indianization (pp. 253–256). For instance, Professor Quaritch-Wales offers the exact opposite evaluation of Indian law (p. 227). Speaking generally, when we think of the evaluation of Indianization, the reader should consider that there are many strong objections to the author's opinion. Also, the author does not mention secondary Indianization of the surrounding areas; for example, influence to North Vietnam and the Philippines. Even if the author thinks that they were trivial things, he should explain them in broad terms. I have several additional criticisms of the author's way of thinking. However, Coedès's purpose in writing the book cannot be grasped from this outline; in terms of individual facts and the relationships among them, the book is the best that can possibly be hoped for.

This book should be continually referred to for the history of Southeast Asia. Also, it should serve as the foundation for studies in the future. The English translation is a faithful one. However, there are sections without bibliography. Also, the present edition need not have followed the exact style of the former bibliography. A list of works cited naturally should have been included. [Notes (pp. 259–370) include all references cited. Ed.] Moreover, certain single items in the index should be grouped together.

Archaeologia Viva No. 1. Jean de Moreuil, ed. and pub. Paris: Les Publications d'art et d'archéologie, Sept.-Nov. 1968. L3.80/U.S. $8.50.

Reviewed by C. C. LAMBER-KARLOVSKY, *Harvard University*

This new quarterly is "devoted to the finest archaeological museums and private collections in the world." Its publication introduces both a new and welcomed concept, all the more so because the first volume, and all subsequent volumes, will be issued in three editions: French, English, and German.

The appearance of the first volume can be considered a major event in the publication of archaeological journals, even in a year which saw the introduction of several new journals. It is a superb volume dealing wholly with the prehistoric materials contained in the Iran-Bastan Museum in Teheran. The articles include summary reviews of topical concerns in Iranian archaeology; i.e., R. J. Braidwood's "First Steps Towards a Food Producing Way of Life in Late Prehistoric Iran," E. Porada's "The Art of Ancient Iran," and L. vanden Berghe's "The Rich Naturalistic Influences in Iranian Painted Pottery." Other articles focus on single sites, thus providing a regional coverage of Iranian prehistory. Emphasis is on the objects recovered in the excavations, all presently located in the Iran-Bastan Museum. Extensive illustrations accompany the articles.

Each contribution in this volume is written by the director of the excavation being discussed. A number of richly illustrated articles appear: E.D. Neghaban on the royal necropolis of Marlik and R. H. Dyson, Jr., on the Hasanlu Project. L. vanden Berghe presents recent evidence on the bronze-producing nomads of Luristan from his important work at Bani Surmah and War Kabud; J. R. Caldwell discusses his work at the assumed early resulting site of Tal-i-Iblis; J. Deshayes discusses the presence of early Medes at Tureng Tepe; A. Hakemi writes on his finds from Kaluruz, while B. deCardi reviews the Bampur sequence. P. Amiet and M-J. Stéve cover the civilization of Elam in light of recent work at Susa. The volume concludes with a short note by T. Cuyler Young, Jr., on the excavations at Godin Tepe. It might be noted that all of the work presented in this volume has been done in the past decade—evidence of the dynamic pace of Iranian archaeology—and it by no means exhausts the full scope of activity there. In fact, one misses reports on later period excavations, i.e., Medes (Nush-i-Jan), Achaemenians (Pasargadae), Sassamians (Bishapour), and Islamic (Siraf) sites, which would have rounded out the presentation of the rich collections in the Iran-Bastan.

This journal promises to be among the very best in the popular presentation of archaeological research. The professional archaeologist will be grateful to the editor for the extensive illustrations, while the nonprofessional reader is treated to the best in archaeological reporting. We look forward to the continuation of this journal in the hope that future volumes will maintain the standard established in the first.

Ancient China: From the Beginning to the Empire. Jacques Gernet. Raymond Rudorff, trans. Berkeley and Los Angeles: University of California Press, 1968. 157 pp., 4 maps, bibliog., index. U.S. $5.00.

Reviewed by CHO-YUN HSU, *Academia Sinica*

This book, translated from *La Chine Ancienne* (published by Presses Universitaires de France, 1964), serves the English reader as a concise textbook on cultural and historical development in ancient China. The author has done an admirable job in condensing into a relatively small volume the major themes of cultural change during the formative period of Chinese civilization.

After giving a brief presentation of the sources and of the chronological framework, the author begins to narrate the prehistory. His treatment focuses on the developmental thesis of Neolithic cultures formed by Kwang-chih Chang. Unfortunately, he does not adopt the more fully elaborated presentation of the Neolithic evolution refined by Chang in his celebrated book, *The Archaeology of Ancient China* (Yale University Press, 1963; rev. and enlarged ed. 1968).

The chapter on the Archaic period actually covers the history of the Bronze Age. The main themes seem to be drawn from the theses of W. Eberhard and M. Granet. The author fails, however, to distinguish the Shang and the Western Chou societies. This demarcation is important, however, since the conqueror-conquered relationship in the Western Chou societies may have been the foundation of Chou feudalism.

The Chun-chiu period is discussed as the transition period between the Archaic period and the period of the Military States. It is worthy to note that the author approaches the decline of the Chou as the phenomenon of the peripheral states gaining control from the "city states" in the central plain. I would venture to add that the establishment of the Hegemonies, especially in the hands of the Chin rulers, was largely the reaction of the northern Chinese states to intimidation from the then non-Chinese powers, particularly Ch'u in the south.

The chapter on the Military States is less interesting than the preceding one. When the author says that the warfare and military activities of this period were only "an extension of that of the sixth century," I tend to disagree. Since the states of the later period were much larger and more consolidated, the warfare differed in scale as well as in goals. (cf. Cho-yun Hsu, *Ancient China in Transition*. Stanford University Press, 1965. Chapters 3 and 4.)

The chapter on the "Progress of Ideas" is a brief survey of the thoughts of great thinkers in ancient China. The discussion of Taoism in terms of individualism and anarchism is noteworthy, as is the author's treatment of the traditionally labeled "legalists," whom he correctly calls "theoreticians of the state."

The final chapter on the Ch'in Empire is a very short one, too short to contain more than a traditional account.

The notes in this book are far from sufficient; the bibliography is also very brief. There are some mistakes as well. For example, the systematic excavation of the great royal tombs at Anyang took place in 1929–1936, not "since 1950," as the author says (p. 66).

In summary, this comprehensive work, while useful and concise, would be more valuable to the English reader if the author had taken into account the recent publication of several important studies, such as that of Kwang-chih Chang. Finally, the translator deserves applause for his exquisite English.

Archaeology in Western Samoa. R. C. Green and Janet M. Davidson, eds. Bulletin of the Auckland Institute and Museum, No. 6. Auckland: Auckland Institute and Museum, 1969. xiv, 278 pp., 29 tables, 110 illus., 26 plates, bibliog., index. N.Z. $4.50. (paper).

Reviewed by PETER BELLWOOD, *University of Auckland*

This is the first of two volumes dealing with the results of a five-year program (1962–1967) of Samoan archaeology sponsored and organized from the Bishop Museum in Hawaii. It contains a number of excavation, survey, and miscellaneous reports relating to fieldwork carried out by 17 scholars on the islands of Upolu and Savai'i. Each report is admirably illustrated and packed with facts for the benefit of future workers in this field. Summaries and conclusions on Samoan prehistory are reserved for Volume II, so that Volume I consists *in toto* of data reports.

The majority of the reports concern the initial surveys of archaeological sites on Upolu and Savai'i and the project areas of Vailele, Luatuanu'u and Lotofaga, all on Upolu. The six goals for the program, formulated by Green as its initiator, were as follows:

1. To investigate the earthen mounds, of varying shapes and sizes, which characterize areas of ancient habitation
2. To throw more light on assemblages associated with pottery, originally excavated by Golson in 1957 from beneath one of the Vailele mounds and dated to the first century A.D.
3. To refine earlier classifications of field monuments
4. To undertake settlement pattern analyses, with a major air of defining the nature of inland settlement
5. To develop techniques for the excavation of non-concentrated beach-midden deposits
6. To define the nature of prehistoric fishing gear

Green himself claims success for the first three objectives, partial success tempered by lack of chronological control and small samples for the fourth, a degree of methodological success for the fifth, and little success at all for the sixth.

Preliminary reports include those by Golson on his original work carried out in 1957, including the discovery of the Vailele pottery-bearing levels, and Green and Davidson on a classification of Samoan adzes. For students of Eastern Polynesian adzes, this section is essential.

Two reports follow, by Buist and Scott, on field remains in Savai'i, although no excavations were undertaken on this island. These are followed by the reports from the Vailele project—the most important one in terms of results. Excavations on four mounds, SU-VA-1 to 4, have given an unrivaled, if interrupted, sequence of Samoan prehistory going back to 300 B.C. Pottery was apparently in production in this area from before 300 B.C. to about A.D. 190, after which time it went out of use, inexplicably but fairly conclusively. On Va-4, a period of aceramic occupation lasted from A.D. 100 to 300, after which all four sites went out of use until the present mounds were built about A.D. 1000 or later. One inlaid mound, Va-38, was constructed some time before A.D. 400, and this helps to fill the hiatus in the stratigraphy of the four coastal mounds. However, the ceramic occupation levels and the aceramic mounds show no sign of chronological overlap. Presumably Green's interpretation of this highly interesting fact will appear in Volume II.

While the Vailele project and Golson's earlier work have given a much needed time depth to Samoan prehistory, the Luatuanu'u project was orientated towards the definition of the nature of inland settlement. Davidson describes the detailed survey of forts, terraces, and mounds along a number of ridges extending inland in this area, while Green reports on a large inland hill-fort whose initial construction phase has been dated to A.D. 400±80. Peters follows on the excavation of a star-mound, overlying a terrace which has yielded a radiocarbon date of 220±80 B.C.—the earliest date so far for inland settlement in Samoa.

The third project, in the Lotofaga area, is described by Davidson. Here, an attempt was made to produce results from a number of non-concentrated beach-middens, and the methodology is well described in the report, although the deposits themselves were unfortunately lacking in diagnostic artifacts. A single fragment of a *turbo* shell one-piece fishhook was the most significant find, and this is the only one known so far from a prehistoric context in Samoa.

Finally, the volume is closed with a series of small miscellaneous reports, including one on temper sands in the prehistoric pottery. Green, Davidson, and colleagues have worked together successfully to place Samoa firmly on the archaeological map of the Pacific, and the Vailele results provide some idea of the characteristics of that early Polynesian culture that must have been transmitted with the first settlers to Eastern Polynesia. It goes without saying that this is a volume for specialists, consisting almost entirely of factual data covering 273 double-column pages. The contents planned for Volume II suggest that this will be of greater specialist and nonspecialist interest, in providing overall summaries and conclusions on:

1. A summary of research in Samoan prehistory
2. A prehistoric sequence for the island group
3. A typology of the principal structural forms
4. A discussion of Samoan prehistory in relation to that of Polynesia

Publication of this volume is awaited with considerable interest.

Ancient India—A History of its Culture and Civilization. D. D. Kosambi. New York: Pantheon Books, 1965. xi, 243 pp., figs., maps, plates, index. U.S. $6.95.

Reviewed by J. P. SHARMA, *University of Hawaii*

There have been numerous notable interpretations of ancient India, such as those of Max Weber, R. C. Majumdar, Amaury de Riencourt, S. A. Dange, Albert Schweitzer, K. A. Nilakanta Sastri, Louis Renou, Jean Filliozat, Charles Drekmeier, Dale Riepe, A. L. Basham, and others. They vary in quality and are written from different points of view. But none of these works is so fresh and original as the book under review. The Kosambi book is strikingly fresh and original. Better known as a mathematician, Kosambi was endowed with a truly Renaissance versatility. He made contributions in the fields of classical genetics, numismatics, archaeology, and Sanskrit textual criticism. Kosambi wrote with rare graceful style. He was witty, logical, ruthless, frankly critical, and thoroughly consistent in his treatment of a subject.

Kosambi's book contains seven chapters. The Introduction, "Historical Perspective," presents a revealing critique of contemporary Indian society and makes a strong plea for the reader to study rural and tribal society in order to gain a proper understanding of ancient Indian history and civilization. The following six chapters deal with primitive life and prehistory: "The First Cities," "The Aryans," "From Tribe to Society," "State and Religion in Greater Magadha," and "Towards Feudalism."

Kosambi, the anti-Brahman Marxist, admired Buddhism, but showed contempt for any authority except that of reason. He was highly critical and possessed an unusually constructive historical imagination. But Kosambi was first an intellectual who had lost no love on the ruling class, whether British or Bhāratīya. Nor did he faithfully adhere to the historical dialectic. He was a critical Marxist. It will be foolish for one to go to Kosambi's book—a summary of all his previous writings on Indian history and culture (note p. 25)—with any preconceived notions, for his wit, sarcasm, and vast range of historical imagination is staggering.

Some Western archaeologists and historians have failed to appreciate the value of Kosambi's work. His interpretations and conclusions are often at odds with their long-cherished theories. Often, Kosambi's work on Ancient India has been derided because he was not recognized as a full-time archaeologist and a trained historian. He did not hold a chair in either of these disciplines at any recognized seat of learning. But does knowledge become valid only when pronounced from an academic chair? Such criticisms of Kosambi seem petty and perhaps are inspired by personal envy and jealousy. He himself clearly anticipated some of these criticisms (p. 24). As the *New Statesman* put it, "For him history must explain, not merely describe or narrate . . . Kosambi's book will enrage many readers, at home and abroad."

Kosambi had no academic pretensions and wrote "with the minimum of scholarly display," a fact evident from the complete lack of footnotes and bibliography in the present work. However, there is an excellent analytical index. The book is profusely illustrated with figures, plates, and maps chosen for their quality and representativeness, rather than for their mere popularity.

In Kosambi's view "*History is the presentation in chronological order of successive changes in the means and relations of production.*" He takes "*culture*" in the sense of the ethnographer, "to describe the essential ways of life of the whole people" (p. 10). The author disavowed any "doctrinaire purpose" to his sketch of Indian cultural history. He, like E. H.

Carr, believed that "the function of the historian is neither to love the past nor to emancipate himself from the past, but to master and understand it as the key to the understanding of the present . . . The function of history is to promote a . . . [more profound] understanding of both past and present through the inter-relation between them." Hence, his work necessarily has "an intimate connection with the present state of Indian society, not only with the past" (p. 24).

Kosambi attempted to write a new kind of history of India in which—though literary sources were used—archaeological data and village traditions played a dominant role. In his opinion, much of today's talk about India's glorious past is largely flights of fancy unhampered by facts or common sense. This is because most authors rely heavily on the literary texts written by an elite who had vested interests and who interpreted practices, precepts, and personalities from their own "bourgeois" point of view. The view of the Brahman elite was the view of a small minority who looked at India *from above* the vast mass of people. The folk attitudes, reactions, feelings, customs, and beliefs did not really matter. Kosambi believed that books that rely mostly on Brahman literature portray a very distorted view of Indian history. These books neglect to utilize sufficient archaeological evidence, numismatic data, and fail to tap the rich source of living village traditions. Hence, their writing "gives either no results or the ludicrous conclusions that can be read in most 'histories' of India" (p. 16).

Kosambi attempted to convey what history really means to ordinary men and women in the villages and cities. In effect, he wrote a social history of the Indian people. He traced the main features of the Indian character back to remote antiquity as the natural outgrowth of a historical process. It is precisely this type of history which K. M. Pannikar and Barrington Moore, Jr. advocate in their respective works as being the most fruitful mode of investigation for an understanding of Indian history (given the unique relationship continuously operative between the political and cultural dimensions of the Indian context). Kosambi admitted that "India has virtually no historical records worth the name" (p. 9). . . . "Rome and Greece offer less antiquity, but far better historical literature. . . . In India there is only vague popular tradition, with very little documentation above the level of myth and legend. . . . This has led otherwise intelligent scholars to state that India has no history. Certainly, no ancient Indian history is possible with the detailed accuracy of a history of Rome or Greece." "But what is history?" he asks. "If history means only the succession of outstanding megalomaniac names and imposing battles, Indian history would be difficult to write. If, however, it is more important to know whether a given people had the plough or not than to know the name of their king, then India has a history," argues Kosambi (p. 10).

Kosambi was not a crusading communist, hence he did not always try to fit Indian history into a strict Marxist theory of history. However, like most other scholars, he could not completely free himself from his beliefs. Some, as was Kosambi, are quite frank about their biases, and thus render inordinate help to the reader in evaluating their work. Others, proclaiming to write "free of biases," and "objectively" are in effect only trying to subvert the reader. What Kosambi attempted to remedy is the one-sided elitist view of history that most historians present. He looked at history *from below*, from the point of the masses. He used evidence mainly from artifacts discovered by the spade, and from precepts and practices still alive in the countless villages of India. The reader must not be shocked or surprised if he finds new ideas, novel interpretations, and unusually telling comparisions regarding well-known Indian persons, practices, prejudices, and precepts. The book is dynamite. It will spin the brain and stimulate thinking. No author's views, especially Kosambi's, can be completely endorsed by their readers. But Kosambi's *Ancient India* makes better sense than most "histories" of India today.

The present work is an improvement on the author's previous book, *An Introduction to the Study of Indian History* (Bombay, 1956); the line of argument is less dogmatic and more consistent. However, the earlier work is better in that it had extensive notes and references to his sources. *Ancient India*'s main strength lies in being highly interpretative and provocative. Compare Kosambi's work to the most popularly read book on ancient India, A. L. Basham's *The Wonder That was India* (New York, 1959). This book is mostly descriptive, topical, and written in a lucid style. Space does not permit me to give full treatment to Kosambi's content; he made too many new points. Therefore, I have selected several very important topics that will reveal its strength. For those who care to, compare Kosambi (K) and Basham (B) on the following: *Yugas* (K: pp. 22, 26–27, cf. B: pp. 207, 321), Krishna (K: 114–120; B: 303–306), Rāma (K: 170–171; B: 303), Shiva (K: 40, 48, 94, 170, 191, 205–206; B: 307–309), Mother goddess (K: 47–48, 68, 83, 116, 205; B: 13–14, 311–313), Nāgas (K: 86, 92, 93–94, 109, 117–118, 127, 164, 168, 170, 171, 179, 192–193; B: 298, 317). Moreover, Kosambi gives a more adequate explanation of the following topics than Basham, who is either too brief or does not discuss them. Both books possess excellent indices that can be readily used to verify the following: Indus civilization, background to the rise of "heretical schools," relation of Buddhism to mercantilism, role of traders in the spread of Buddhism, origin of caste, Brahmanical attitude towards innovation, background to the origin of *ahimsā*, role of superstition in discouraging slavery, Aryan expansion to the east and south, non-Aryan contribution to Indian civilization, analysis of importance of word of mouth, analysis of Hinduism, agriculture, *Gītā*, role of metals (especially iron), and feudalism.

Basham lacks the analytical and interpretative skill possessed so overwhelmingly by Kosambi. Undoubtedly, both authors command a vast knowledge of the subject. However, certain distinctions—

based on the complete reading of their writings—may be noted: Kosambi carried out archaeological and anthropological fieldwork; Basham did not. The evidence of the latter relies mostly on texts, the former on artifacts and village traditions. Basham presents a view *from above;* Kosambi presents it *from below*. Basham describes and informs, Kosambi interprets and enlightens. Basham is thematical, while Kosambi is chronological. Basham is comprehensive; Kosambi does not claim to be. Basham quotes and advocates "controlled historical imagination"; Kosambi compares and is an artful practitioner of constructive historical imagination. Basham has only vague ideas of philosophy of history, whereas Kosambi has a definite philosophy of history. Basham disbelieves that history teaches lessons for the future; Kosambi believes it *does* and *must*.

However, the reader must be forewarned that Kosambi was an anti-Brahmana, pro-Buddhist Marxist who gave somewhat too much importance to the "dark heroes"—Shiva, Rāma, and Krishna, and to the Nāgas and female deities. He wrote little on Jainism and Ājīvikas. He wrongly attributed a Licchavian origin to Mahāvīra (p. 105), made the Sakyas subject to Kosala (p. 108), and gave a rather late date for the Aryans in order to emphasize the role of iron in empire-building. Kosambi also gave too important a role to religion in Indian civilization.

Even the radicality of Kosambi's interpretative enterprise can be surpassed if one questions his *a priori* thinking, namely his basically Marxist *weltanschauung* and theory of society and historical development. However, to undertake such a task required a mastery of recent German writings in the areas of historiography and philosophy of history, beginning with Dilthey and culminating in Hans-Georg Gadamer. With regard to the relationship between religion and institutions in the Indus civilization, Kosambi unnecessarily connected the latter day *devadāsis* of the south with this ancient culture. He also gave greater religious connotation to the great bath than is warranted by the evidence. Similar results accrued from his giving undue importance to material causes in the course of the rise of civilizations.

For the excellent work of this type, there are quite a few typographical and diacritical errors (pp. 81, 85, 90, 91, 93, 94, 125, etc.). A low quality of paper is used by the publisher, but the typeset, reproductions, and binding are excellent, and the book is reasonably priced.

Kosambi is *must* reading for all intelligent and thoughtful students and scholars of Indian civilization. I would also like to record my great sorrow upon learning of the recent death of this unique man and scholar.

Catalogue of the Archaeological Collection in the Faculty of Letters, Kyoto University, Part 2 (Historical Period of Japan) (Kyoto Daigaku Bungakubu Hakubutsukan Shiryo Mokuroku Daini Bu: Nihon Rekishi Jidai). Kyoto University, Faculty of Letters, 1968. xxi, 269 pp., approx. 1250 black and white plates, 7 color plates. (In Japanese.) No price given.

Reviewed by RICHARD PEARSON, *University of Hawaii*

Part 2 of this series, which was initiated with the catalogue of artifacts of the prehistoric period of Japan (1960), follows the same format and maintains the same high standard as Part 1. It provides information on: the place of origin, with previous names or variants; a brief description, including specific provenience within a site when it is known; measurements, date and source of acquisition; and a listing of published references. The Kofun period is divided into three substages, I, II, and III; and the Heian is divided into Early and Late. The total span of historical archaeology is covered.

By presenting total holdings rather than simply "treasures," the authors have expanded tremendously the possibilities for comparative and typological studies. They provide a reference collection which encompasses a whole museum. In my estimation, their presentation is more practical for archaeological objects than that of the Department of Archaeology of the University of Tokyo, which has published more than 20 small folios of selected items *(Koko Zuhen, Selected Specimens of Antiquities)*.

Since the book is a reference publication, a useful addition would have been an index by artifact type, rather than simply a table of contents by geographical location.

A similar effort, *Umehara Koko Shiryo Mokuroku* (Catalogue of Archaeological Materials Collected by Professor Umehara) by Sueji Umehara, one of the most prominent Kyoto archaeologists, was published in 1966 by the Toyo Gakujutsu Kyokai. The book makes available information on a vast collection of Korean artifacts, lists location, and indicates directions for further research.

The Kyoto group has established a liberal tradition by making available research results and materials and have offered an imposing example to all of us.

Bekoropoka: Quelques Aspects de la Vie Familiale et Sociale d'un Village Malgache [Bekoropoka: some aspects of family and social life of a Malagasy village]. Henri Lavondès. Preface by Hubert Deschamps. Paris: Cahiers de l'Homme, Edition Mouten et Co., 1967. 188 pp., 14 maps, 14 plates.

Reviewed by PAUL OTTINO

Although the work of M. Lavondès is based on material collected in 1959 and 1961 in the Masikoro village of Bekoropoka in southwest Madagascar, (Mangoky delta) it is valid for the more extensive area delimited by the Fiherena and Manambolo rivers and covers both the Masikoro and the so-called Southern Sakalava or Menabe Sakalava country.

In chapter 1 the village is introduced, and some preliminary ideas concerning its historical background are given. The author's approach to such fascinating and such little known subjects as the possible existence in the west of Madagascar of distinct ethnic and sociocultural strata provides a brief introduction to one of the major questions related to the controversial problem of Madagascan origins.

Kinship is dealt with in chapter 2. After establishing that the Masikoro system follows a cognatic principle, the author develops the chief distinction between the broad kinship categories of *foko* and *longo*. *Foko* denotes close consanguineal relatives reckoned bilaterally, whereas *longo* denotes more distant consanguineal relatives as well as affines.

The two categories which constitute an Ego-centered kindred exist only in relation to an individual or group of full siblings. *Foko* relatives comprise all the direct cognatic descendants of the four pairs of Ego's great-grandparents. Beyond this limit, though the quality of *foko* is still recognized in the siblings (as well as in the lineal ancestors of these persons and in their siblings), it is not extended to the siblings' descendants who are no longer *foko* but *longo*.

These formal distinctions appear to be deeply affected by residence rules. Co-resident relatives both near or distant, are often considered *foko* whereas consanguineal relatives living elsewhere tend to be considered *longo* regardless of their actual relationships to Ego. The rule of viripatrilocality has the effect of making one consider *foko* the co-resident agnatic relatives.

The cognatic principle underlying the Masikoro system is reflected in the terminology which is based mainly on a distinction between generations and sex. However, if for most generations (including the one of Ego that does not distinguish between parallel and cross cousins) the overall pattern conforms to the so-called Hawaiian type, differences do exist in the first ascending generation. At this level, while the terminology is generational for the mother and her female collaterals (which together with the female collaterals of the father) are called *reny,* it is bifurcate merging for the male relatives opposing the father (and his male collaterals called *ray*) with the male collaterals of the mother that are designated as *renilahy* (literally "male mother").

The distinction of sex and relative age between siblings applicable for the generation of Ego and his two adjacent generations (parents and children) is ignored for the two alternate generations (grandparents and grandchildren).

The vocabulary of alliance is complex. At the Ego generation it varies not only in regard to the sex of the person to whom one addresses but also in regard to the sex of the speaker.

Marriage, alliance, and child affiliation are covered in chapter 3. After a description of the rites that connect the child to the father's family, the author discusses two questions of sociological interest: the wife's brother's wife *(ravetro)* taboo and the alliance networks.

The author shows from a male Ego point of view that the Masikoro prohibition, which differs fundamentally from a similar prohibition recorded in Imerina (Center of Madagascar), strongly resembles the prohibitions reported from Bantu Africa. In Imerina, the prohibition seems to be connected to an endogamy between lineages stemming from a same clan and to the practice of an elementary system of sister (real or arbitrary) exchange. This practice that has to be repeated throughout the successive generations is said to strengthen the ties between those intermarrying lineages and, at the same time, to prevent a dispersal of the ancestral estates.

Owing to their strict rules of incest, such a practice is impossible for the Masikoro. M. Lavondès looks for another explanation and finds it in the Bantu prohibitions. As Lévi-Strauss has demonstrated, the Bantu prohibitions seem to prevent a premature break in the circulation of cattle given as bride price *(lobola)*. The *lobola* permits a reinforcement of the alliances between the groups, and at the same time it gives the groups a means of acquiring wives (Lévi-Strauss, *Les structures élémentaires de la parenté,* Paris: Mouten, 1967:535–541). The Masikoro prohibition differs from this model in two respects. First, the Masikoro cattle immediately sacrificed cannot be circulated. Second, while the Bantu forbiddance is absolute, a Masikoro is allowed to marry his *ravetro* (wife's brother's wife) provided that her marriage with his wife's brother has proved to be sterile.

This second point permits the author to show that the cattle given by the groom's family to the family of his bride constitutes the first step in permitting the affiliation of the potential children to their father's lineage. The object of the exchange is not the woman herself but her capacity to bear children (p. 77). Consequently, if the marriage is sterile, the contract is void, and nothing opposes an eventual remarriage with a *ravetro.*

The developments concerning alliances and matrimonial networks present numerous problems. The relative prohibitions regarding marriage within an exogamous clan, combined with the more absolute prohibitions between persons standing in a *foko* relation, result in forbidding an individual to marry where his father and his two grandfathers married. The author does not develop this point which would seem to produce effects very comparable to those produced by an Omaha system "standing half way between elementary and complex systems" (Robin Fox: *Kinship and Marriage*, Baltimore:Penguin Books, 1967: 224–227). Similarly, an examination of the two alliance networks of the villages of Bekoropoka and Ambahikily (situated more to the east) brings to light two fundamental facts valid for the whole of Malagasy south and central-west:

1. The partition of the extensive south-north oriented Masikoro-Sakalava plain into sociological divisions stretching eastward from the coast
2. The second degree division within those units, contrasting the narrow coastal area domain of the sea-oriented Vezo and their close neighbors (be they Vezo or Masikoro) to the hinterland populated as far as the border of the Bara country by Masikoro peasants and herders

The discussion in Chapter 4 regarding clans and lineages is founded on an agnatic ideology and shows the distinctive criterion to be that of corporativeness. Masikoro clans called *firazana* (a word that expresses more exactly the idea of being affiliated to a certain clan) are nothing else but broad categories. The real units are the lineages; for example, *tariha,* with their headman; *mpitoka,* in charge of the religious functions; and *jiny,* holder of the familial relics. The *jiny* permit and justify the ancestor cult that gives the lineage its social identity.

Chapter 5 deals with social stratification. In it the exorbitant privileges of the ruling group of nobles *(mpanjaka)* are brought to light. This group, whose members are addressed by a special vocabulary, are exempt from both the restrictions that beset the free men *(vohitse)* and those that apply to the descendants of slaves. *Mpanjaka* men and women are allowed to marry anybody. Their system of descent, resolutely cognatic (ignoring the general agnatic principle and the rule that the status must be transmitted through the males) recognises both the son's *and daughter's* children as legitimate descendants. The deliberate confusion of the concepts of descent and filiation has the odd consequence that a common man (of inferior status by definition) who is married to a *mpanjaka* woman suffers a sort of sociological *diminitio.* In this union his descendance does not enlarge his group. This situation is considered so peculiar that the *mpanjaka's* spouses are not called by the general term of *valy* (spouse), but are designated by a special term *biby* (perhaps of Bantu origin).

It is not possible to explore further the question of castes other than to note the significant differences in attitude between the "Bantuized" Masikoro and the Merina—who remained more "Indonesian"—in regard to the blacksmiths class. In spite of the justified caution of L. Dumont that "it is one thing for a society to mix 'castes' and clans (Madagascar), it is another thing to constitute itself entirely from a grouping of castes" (L. Dumont, *Homo Hierarchicus :essai sur le système des castes,* Paris:Gallimard, 1966:271–272), the problem of the Malagasy pseudo-castes within the whole society remains unsolved.

The last chapter (6) is dedicated to the relationship between kinship and locality. In it the author reveals, too briefly, that the statistical composition of the localized lineages does not correspond closely to the agnatic ideology. In addition to the core of the agnatic *foko* relatives and their spouses or close affines, other *foko* cognatic close relatives are found. In the same way, the author establishes that the agnatic principle is no longer the only kinship system in operation. He bases this insight on the principles of land tenure, the distinction of the lineage land (*tany lova* versus the lands appropriated by individuals, *tany filà*), and the recent cognatic pattern of inheritances.

M. Lavondès's conclusion points out that the cognatic principle affects the domain of the kinship organization, while the agnatic principle pervades the political-religious organization. That fact, together with the problem of the double (Indonesian and Bantu) heritage, reinforces the discussion raised in the first chapter regarding the existence of two distinct cultural strata. It seems that the Indonesian influence may date from before the Masikoro-Sakalava invasion, at the end of the sixteenth century. Previously it had been thought that Masikoro-Sakalava introduced the whole agnatic ideology and organization together with the custom of circumcision that the Vezo and Mikea, descending from the former inhabitants, do not practice.

This review gives an insufficient idea of a book richer, perhaps, in its implications than in its content. It is hoped that a second study dealing with what the author calls "kinship in space" will extend the limits of a single village to follow the dispersion of clans and lineages throughout a much more extensive area. Very probably, such a study revealing the existence of kinship and alliance networks would rapidly destroy the myth of the so-called western Malagasy ethnic groups. In my opinion these ethnic groups correspond either to mode of livelihood (Masikoro, Vezo, Mikea) or to political entities (Sakalava and also—and this is the source of many confusions—Masikoro). A similar point of view was expressed by H. Deschamps before the war, and he has recently restated the same theory (H. Deschamps: *Les Antaisaka: Geographie humaine, coutumes et histoire d'une population malgache.* Tananarive, 1936:206 and *Madagascar.* Paris, 1968:58).

Man the Hunter. Richard B. Lee and Irven DeVore, eds. Chicago:Aldine Publishing Company, 1968. 415 pp., tables, diagrams, maps, bibliog., index.

Reviewed by J. RUTHERFORD, *University of Hawaii*

This book is the outcome of a symposium on man the hunter held in Chicago in the spring of 1966, when twenty-eight papers on the subject were delivered by specialists in various subdisciplines of anthropology. Man as a hunter is considered from synchronic and diachronic perspectives—from the point of view of archaeology, cultural history, cultural evolution, ecology, epidemiology, demography, social organization, and philosophy. Indeed, one of the most valuable things about the book is the diversity of views, which can be compared to see how they relate to one another.

The book is divided into seven parts. In the first part, a statement of problems is presented by the editors and a survey of geographical distributions of hunters is made by Murdock. The second part concerns ecology and economics. One theme that emerged from this section is that many commonly held assumptions about hunters and gatherers do not stand up to empirical testing. For example, it appears that many of these groups do not live permanently in imminent danger of starvation but may be what Sahlins calls the "original affluent society," having ample food supplies and plenty of leisure. The !Kung [*sic*] bushmen are like this, and as Lee points out, these tropical hunters have very high economic security as their food supply is never exhausted, unlike that of their agricultural neighbors. However, Suttles, quoting Bartholomew and Bird, mentions that Liebig's Law of the Minimum operates in hunting societies, especially in many Eskimo groups for whom inadequacy of the food supply is a real danger.

Another common illusion is that hunters subsist mainly on large game. The diet of the !Kung was sixty to eighty percent vegetable by weight according to Lee, and the Hadza diet was eighty percent vegetable according to Woodburn. As Lee points out, the supply of large mammals is very unreliable, and the reliability of small game, plant and marine life is what assures the hunters of ample food supplies. It is the absence of vegetable resources and the Eskimos' dependence on large mammals as food that makes their food situation precarious. For many groups hunting is more of a sport than an economic necessity. Suttles notes that methods of preservation of food may be as important as methods of obtaining it, and the great food surpluses of some Canadian Pacific Indian groups are related to preservation as well as to the prestige given to food gathering, i.e., the nature of ecological adaptations may be significantly affected by nonecological values.

Another valuable part of this book is a record of the discussions that followed the papers. Discussions center on problems such as the definition of a hunting society (e.g., are fishermen hunters or gatherers?) and the "personality" of hunters (e.g., are they lazy or parasitic or happy-go-lucky or fatalistic, etc?); in short, why they do not practice the Protestant Ethic.

A point that emerges from Part 2 and the discussions is that it is more difficult than many of us had realized to make generalizations about "hunters" with regard to culture and ecological organization. This is confirmed in the next section on social and territorial organization. Woodburn points out that the Hadza social organization is fundamentally flexible and variable, and Hiatt notes that residence groups, land ownership groups, land use groups, and other features do not coincide with the Gidjingali. There is considerable discrepancy between statistical models of Australian social organization and the mechanical models formulated by Radcliffe-Brown. The issue of the relationship between different kinds of models is a factor that crops up several times in the book.

The papers in Part 3 also provide interesting information on environmental and ecological determinism in social systems. Turnbull points out that fission of Mbuti groups may sometimes be strictly political and independent of ecology (in fact to avoid conflict), or it may be a direct expression of the available food supply. On the same issue Damas notes that resources and exploitative patterns are very similar in the central Eskimo areas, but this does not lead to similar nonecological social features. It seems to me that correlations between ecological variables and other socio-cultural variables are often falsely treated as if the relation is causal, and in this respect Pilling's paper on the southeastern Australians is particularly interesting. It has been assumed by several writers that hunters in opulent southeast Australia had food surpluses necessary to establish centralized government, and that they had, in fact, done so. Pilling reviews the literature carefully and concludes that there is no evidence of their organization being different from that of other aborigine groups. The ecological potential for urbanization, centralization and so on was there, but such phenomena did not occur. The early writers seem to have assumed the correlation between food surpluses and the start of urbanization and centralization.

In Part 4, "Marriage and Models in Australia," statistical data on demography and ecological variables (e.g., rainfall patterns) are presented, again as a challenge to mechanical and ideal models of social organization. Hiatt, pointing out the great discrepancy between the theory and practice of Gidjingali organization, launches a strong attack on Lévi-Strauss and ideal models. That the statistical and local variability of social organization is at least as important as the formal similarities in the social organization of different groups is a major issue in this section, as well as the reliability and validity of the Australian data of Radcliffe-Brown and others.

Part 5 contains two papers on demography and population ecology. Dunn considers the simplicity-complexity of the ecosystem in relation to epidemiology and demography, and Birdsell develops the idea of an equilibrium population model for some Australian groups and uses it to predict the dynamics of Pleistocene populations. Birdsell seems to be introducing monocausality (i.e., food supply) as the explanation of population dynamics. As I noted earlier, population dynamics may be purely political, and the note of environmental determinism that he strikes here is against the general trend of the symposium. The issue comes up again in Part 6, "Prehistoric Hunger Gatherers," when Freeman, a process archaeologist, argues that ethnographic analogies have been used in archaeology to construct evolutionary sequences which are in reality only taxonomies. The error, he claims, is that the use of ethnographic analogies depends on the assumption that like environmental stimuli produce like responses. He rejects any use of ethnographic analogies in archaeology, in contrast with the view put forward by Glynn Isaac in the previous paper.

Lewis Binford calls for new and more precise scientific models in archaeology, and in the following discussion Deetz offers a lengthy comment on the archaeological determination of the subsistence base. He and several other commentators agreed that the role of vegetation studies in archaeology has not been sufficiently stressed.

In the seventh section, "Hunting and Human Evolution," Washburn and Lancaster add a philosophical perspective to the whole volume in pointing out that our intellect, emotions, and basic social characteristics, such as gregariousness and cooperation, were formed in the hunting period of human history along with our biological characteristics.

In the preceding account of the diverse material in this book I have attempted to illustrate the coherence of the papers, which is due partly to the fact that the papers were circulated prior to the conference and in many cases substantially revised in the light of the discussions. It is also due, no doubt, to fine work by the editors of this excellent volume.

Hou Chia Chuang [The Yin-Shang cemetery site at Anyang, Honan]. Li Chi and others, eds. Archaeologia Sinica, No. 3. Taipei: Institute of History and Philology, Academia Sinica, 1962.

HPKM, Vol. II, Part 1: original manuscript, Liang Ssu-yung, ed., and supplement, Kao Ch'ü-hsün. Part 2: 15 pp. of plates, Kao Ch'ü-hsün, comp., 270 plates, 7 col. plates in separate appendix. Taipei: Institute of History and Philology, Academia Sinica, 1962. 390 pp.

HPKM, Vol. III. Original manuscript, Liang Ssu-yung, ed., and supplement, Kao Ch'ü-hsün. Taipei: Institute of History and Philology, Academia Sinica, 1965. 128 pp., 87 plates.

Reviewed by BARBARA STEPHEN, *University of Toronto*

Although the An-yang archaeological reports have been appearing regularly since 1959, they have not had the kind of reception from the archaeological world in general that is normally given works of their unquestioned importance. Aside from the fact that the reports are published entirely in Chinese, the principal reasons for lack of response to them are that the excavations under consideration were done more than thirty years ago, and a variety of preliminary reports and notices designed to make information on the most important finds quickly available have familiarized a whole generation of students with the main features of the site and its remains. Therefore, the reports, although fresh from the press, have a *déja vu* quality that has lessened their impact if not their importance. The harrowing series of events which prevented earlier publication of the full reports is known to relatively few specialists and seems, rather sadly, to have been appreciated by fewer still. All those interested in expanding knowledge of the origins of Chinese culture must be grateful for the dedication, patience, and sheer endurance of the archaeological team that has labored throughout the years to continue reporting on the An-yang excavations.

The site, still the most significantly early bronze-age site in eastern Asia, certainly merits scholarly attention, for it offers the richest and most dramatic body of information on this crucial phase of Chinese cultural development. An-yang is the modern center near which the ancient dwelling and cemetery sites of the latter half of the Shang Dynasty were located. Individual sites in the area have been named after smaller towns and villages in their immediate vicinities. Several kilometers northwest of the ancient dwelling site at Hsiao-t'un, an extensive cemetery area was excavated at Hsi-pei-kang, near Hou-chia-chuang, and ten major tombs, one cenotaph, and a large number of secondary burials were uncovered. The significant tombs, whose size and richness imply the control and expenditure of major resources, are considered royal. Their dates, and those of the Shang Dynasty, have long been disputed. The various dating systems for the period of occupation at An-yang offer a range of 1401–1122 B.C. as the earliest estimate to 1300–1028 B.C. as the latest.

The two large tombs, HPKM 1001 and 1002, form part of a cluster of four major cruciform tombs at the eastern sector of this cemetery area. It has recently been proposed by Alexander Soper that 1001, the central tomb in the group as well as the earliest stratigraphically, could be that of the powerful ruler Wu Ting, while the three around it may be those of three of his sons. If so, 1001 would represent the middle part of the An-yang period when Wu Ting ruled. At this stage, however, identification of any of these large tombs with specific Shang kings must remain speculative.

Tomb 1001, judging by the richness of its contents, surely did belong to a ruler of unusual importance. The expenditure of human beings as sacrifices was impressively large, with 59 skeletons, some decapitated, concentrated in the southern passageway alone. At each of the corners of the main pit were two small rectangular pits, each containing the remains of a man and a dog, and another pit was under the center of the tomb. Subsidiary burials outside the boundaries of the tomb and its passages contained other human beings and pairs of horses. In one of these sites 7 skeletons were found, 5 of them with enigmatic bronze bow-shaped waist fittings of a type also encountered in Siberia. Since 26 arrowheads were also found in this burial, it tends to support Shih Chang-ju's contention that these controversial fittings were somehow associated with bows.

The central part of 1001, as in 1002, was found to have been drastically plundered, and what the archaeologists did find was presumably only what the robbers, both ancient and modern, either did not want or could not easily remove. These earlier disturbances meant that the heart of the tomb was found in great disarray. Nevertheless, the finds from it are among the most important artistic records of their period. Data of some of the large white stone sculptures have been published repeatedly, but others, like the strange seat-like slab in the form of two addorsed creatures suggesting frogs, are less well known. The stone objects and figures, along with the remains of carved and elaborately decorated wooden beams, were the most distinctive finds from this particular burial. To the east of the central disturbed area of the tomb were found earth impressions of many wooden vessels, together with traces of long wooden objects that may have been food trays, decorated at either end with animal heads and extended feet. These wooden objects in particular evoke the comparisons made at various times by Li Chi between fundamental aspects of Shang decorative style and the art of the Indians of the northwest coast of North America.

Although the contents of tomb 1001 were both more numerous and more spectacular than those of 1002, the range of material found in the two tombs is similar. Stone and jade, organic materials including shell, bone, ivory, and boar's tusk, metal, and ceramic wares are described in detail. The finding of some thin sheets of gold in these burials is of interest, in view of their great scarcity on Shang sites. Certainly, the Shang rulers did not lack a taste for luxurious materials or decoration, as a study of the richly carved bone and ivory objects or the bronzes inlaid with turquoise will indicate.

Understanding of the decorative style of the period as revealed by objects from these tombs is augmented by plates of excellent drawings and photographs. The style is highly intricate, with a geometric character dominated by angular and circular spirals. The animal forms also characteristic of Shang art often are transformed almost completely into inventive spiral motifs, scarcely distinguishable from the more regular spirals that surround, cover, and all but obscure them. Only in the three-dimensional representations of birds and animals are the spirals relegated to a secondary place. Some white pottery sherds from 1002 are incised with simple animal designs that also seem to reflect a more naturalistic style. Although tomb 1002 is definitely of a later date than tomb 1001 and is separated from it by an intervening tomb (1004), the white pottery suggests some more recently excavated ceramics from Shang sites, such as Erh-li-t'ou that antedate the main period of occupation at An-yang.

Generalizations about Shang culture based on these two publications would be premature. It is, however, sufficiently clear now that the rather ethnocentric view that has dominated thinking on the Early Bronze Age in China in the past few decades should be modified. Tombs 1001 and 1002 provide sound archaeological evidence of a specific complex of features that relate Shang burial practice to that which characterized the recently defined Timbergrave cultures of second millennium Eurasia, identified by Marija Gimbutas, in the eastern extension of Timbergrave culture with the Andronovo culture of southern Siberia. These features include the construction of a wooden burial chamber within the tomb shaft (the wooden plank flooring of the chamber in 1001 was preserved), the offering of domestic animals, especially bridled horses, as burial sacrifices, attendant human sacrifices, including children, associated with larger burials, deliberate dismemberment of the dead, use of the cenotaph (HPKM 1567), and the inclusion in burials of metal artifacts made with ceramic piece-molds.

Whether any of these features might be significant if taken alone is problematical, but the occurrence over a broad area of such a cluster of traits does suggest that Shang China was a participating member, however remotely placed, of a widespread cultural community throughout which contacts were sufficiently well developed to allow the sharing of specific cultural traits. As long supposed, wheeled transport may well have been the sine qua non of the situation. The presence of a vestigial chariot in the southeast corner of the central pit of HPKM 1001 is a reminder that the Shang possessed a land transport technology more than adequate to have qualified them as members of such a community.

Australian Archaeology. A Guide to Field Techniques. Manual No. 4. D. J. Mulvaney, ed. Canberra:Australian Institute of Aboriginal Studies, 1969. vii, 130 pp., 3 figs., 18 plates. No price given.

Reviewed by JESSE D. JENNINGS, *University of Utah*

Reading and reviewing this book has been an unalloyed pleasure because the several articles it contains are well written (if occasionally pompous) by highly qualified people.

As the title implies, the book is a manual for explaining numerous established and new techniques that competent field archaeologists must command or at least understand. The chapters are: "Field Research in Australia," D. J. Mulvaney; "Elementary Surveying for Australian Archaeologists," D. A. Casey; "Field Photography," Robert Edwards; "Ultra-Violet Research Techniques in Aboriginal Prehistory," W. J. E. Webster; "Recording Art on Rock Surfaces," F. D. McCarthy; "Conservation in the Field and Laboratory," W. R. Ambrose; "The Recovery and Treatment of Bone," N. W. G. MacIntosh; "Application of Modern Plastics to Fossil Casting Techniques," K. C. Parsons; "The Collection and Submission of Radiocarbon Samples," H. Polach and J. Golson; "The Recognition Description, Classification and Nomenclature of Australian Stone Implements: The Report of the Stone Implement Committee, 1967," D. A. Casey, I. M. Crawford, and R. V. S. Wright.

Although the chapters are well done, the title of the manual is misleading in several respects. For instance, there is the implication that Australian archaeology is somehow different; the articles prove that it isn't. Another incorrect inference is that a complete manual of field techniques has been assembled. Many of the techniques are quite specialized, while one or two things the fieldman must know are not included. Mulvaney's chapter gives the impression that the manual is for the fossicker. This is definitely not the case, particularly when one reads Mulvaney's exortations to the fossickers to cease and desist their digging. Mulvaney's preachments are the same as one reads in every manual for the amateur; his chapter differs in being somewhat more elegantly phrased.

In sum, this is a good manual; its contents are lucidly presented, and it should be used by the professional both in the field and for formal instruction of his students. The book first appeared in 1968; it richly deserved this second printing.

Cranial and Postcranial Skeletal Remains from Easter Island. Rupert I. Murrill. Minneapolis:University of Minnesota Press, 1968. 105 pp., 5 figs. (including 2 maps), 28 tables, 2 appendices, extensive references, index. U.S. $5.75.

Reviewed by MICHAEL PIETRUSEWSKY, *University of Hawaii*

Murrill's valuable contribution to the physical anthropology of Polynesia serves not only as a foundation for further work in Polynesian osteology but also allows us to integrate the findings with other branches of Oceanic anthropology. New evidence derived from the study of skeletal remains in supporting an association between Easter Island and Polynesia strengthens a Western, as opposed to an Eastern, origin of the Polynesian people. It is a unique account representing the first published study of archaeologically documented remains from Polynesia and includes metrical and nonmetrical morphology of the entire skeleton.

Remains representing 33 individuals (very often incomplete) from Middle and Late archaeological periods were analyzed according to age and sex. Altogether, there were 27 crania (26 adults, 1 child) of which 22 were male and 5 female. The postcranial remains were often fragmentary and represent only a few of the total number of individuals present. A univariate treatment of certain metrical traits and a general view of all the nonmetrical traits observed from the male crania are discussed with individual metrical and nonmetrical observations being given in the form of extensive tables. The analysis of the postcranial skeleton is largely a metrical one with detailed tables of individual data and mean metrical values dispersed throughout the text. An estimation of stature, a short descriptive section on the identified pathology, and a discussion of the environment of Easter Island are also included. Craniometric comparisons are made with two previous studies of Easter Island crania and with Marshall and Snow's (1956) preliminary account of Polynesian craniology. Further univariate craniometric comparisons are then made with Polynesian, Micronesian, Melanesian, and Australian samples. Murrill delivers an osteologist's view of the Long-ear–Short-ear legend and critically assesses Heyerdahl's (1952) physical evidence for his theory of an eastern origin for the populating of Polynesia. A brief discussion of the palaeoserological findings from the present sample and the blood group gene frequencies of contemporary Pacific peoples are presented. Murrill closes with a limited survey of the linguistic, archaeological, ethnological, and somatological data favoring west to east migration of the Polynesians and adds a rebuttal to criticisms presented by Heyerdahl in his addendum to the former's earlier version of this study (Murrill 1965). No odontological study was undertaken owing to the scarcity of material.

Murrill concludes that the Easter Island sample is a homogeneous one displaying a continuity from Middle to Late periods, although the size of the former is somewhat small and is representative of a Polynesian people who may have come from the Marquesas Islands.

An earlier version (Murrill 1965) of the present work is essentially identical. One major change is the addition of a final chapter on Polynesian migrations. Some reshuffling within the text was necessitated by the reference to the unpublished manuscript on Pacific craniometry and linguistics (Marshall and Giles n.d.), and I noted a few other small changes. Of course, the addendum by Heyerdahl was eliminated. A justification for these revisions appears in the more recent monographic presentation.

The presence of the blood group gene frequency tables (tables 23–25) in chapter VIII where the Long-ear–Short-ear legend is dealt with seems out of place, as these tables are discussed and referred to at length only later in chapter X. Perhaps the only negative impression that I as reviewer received from the otherwise highly competent analysis is the lack of the application of more sophisticated statistics in the comparative section. It is true that the provenience and dating of many of the existing cranial series in museums are not fully documented archaeologically as Murrill states (p. 65), but at least their inclusion would give a fair approximation of what would be found if they were all of certified provenience. He also states (p. 62) that 10 of the 11 samples compared were small, which is not my opinion, as 4 of these samples comprise at least 35 crania each, and 8 samples are in excess of 20 specimens each. Justification of not including such distance analyses as D^2 because of the time element is now without grounds because of the availability of electronic computers. Even without this modern invention, any researcher should be prepared to spend at least as much time processing his data as he did to collect it.

The presentation of these basic data of archaeologically excavated remains of a Polynesian people is accompanied by only one other published work of archaeological material (Pietrusewsky 1969) but is the sole documentation of such remains from eastern Polynesia in the literature. Other still unpublished accounts of similar skeletal remains from Hawaii include manuscripts by Snow (n.d.) and Hainline (1965), and the only other existing Polynesian skeletal material in quantity and of similar provenience is from the Marquesas. A few isolated archaeologically exhumed remains are to be found in New Zealand. Although Marshall's and Giles's (n.d.) D^2 analysis does not include solely certified samples, its absence from the published literature is regretted.

Murill's timely monograph introduces a new era in Polynesian physical anthropology that hopefully will continue and evolve with many such valuable additions.

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The Preliminary Archaeology of Hale Akala, The Royal Bungalow. Michael D. Seelye. State Archaeological Journal 69–1. Honolulu: Department of Land and Natural Resources, Division of State Parks, State of Hawaii, 1968. 39 pp., 5 figs., 14 plates. No price given.

Reviewed by WILLIAM K. KIKUCHI, *University of Arizona*

For years there has been a lack of published material on the results of Hawaiian archaeological excavations. This journal, a preliminary report of excavations conducted as recently as 1968, helps fill the void that has long been felt by students of Hawaiian anthropology and archaeology. The sponsoring institution, the State of Hawaii, Department of Land and Natural Resources, should be commended in its effort to spur the rapid reporting and distribution of data. Although only 12 of the book's 39 pages are text, the shortness of the text is in no way indicative of the quality of the report.

Previous to the construction of Hawaii's new State Capitol Building, the Iolani Barracks was moved to its present location on the grounds of the Iolani Palace. The barracks was partially reconstructed on the spot where the Royal Bungalow is reputed to have once stood. No surface features of the bungalow are presently visible. After reconstruction of the barracks was halted, investigations were begun in an effort to reveal the foundation of the Royal Bungalow and reconstruct its history. Because reconstruction of the barracks will begin again in the near future, an immediate need for more archaeological investigation exists. Seelye's report discusses the preliminary salvage excavation and the results of his findings.

Seelye does not attempt to synthesize the data; he merely discusses his goals and describes his methods and procedures of investigation. The historical and artifactual data are left to a later report. The limited resources available, such as photographs, maps, and historical data, were effectively used by the author in his project. Historical photographs from the files of the Hawaii State Archives were used for visual orientation of the Royal Bungalow. The use of Hawaiian Government survey maps (1882, 1885) allowed him to delineate further the area of excavation, indicating the location of smaller houses and the configuration of sidewalks, curbs, etc., in and around the Hale Akala. Historical sources referring to the origin, use, and final destruction of the site are valuable and add historical interest to the report.

The extent of the excavation was quite limited, since the author had only three days in which to test the area. A pit and an L-shaped trench 14.5 m long, 1.5 m wide, and approximately 1 m deep was excavated, revealing five distinct layers. Each layer contained debris and artifacts indicative of the relative age of the stratum, i.e., "modern" bottle caps, glass, bricks, nails, pottery, etc. Layers 4 and 5, of clay and volcanic ash respectively, were deposited before the bungalow was erected. Of main interest were Strata 2 and 3. Layer 2 was divided into two distinct levels. Level 1, found only within the confines of the barracks, is an artificial layer of modern fill, used to prepare the surface of the floor for later cementing and stabilization; the lower belonged to a post-1919 date while the higher one dated just prior to the reconstruction of Iolani Barracks. Layer 3 consisted of brown soil in which white plaster and concentrations of red bricks were found, to indicate that this layer belonged to the era of the monarchy, i.e., prior to 1889.

Two features found in the excavation, both in Level 3, were noteworthy. They are circular depressions reinforced with chunks of coral, which Seelye identifies as postholes and assumes that they correspond to the lower foundation for the Royal Bungalow's enclosed lanai of lattice panels. If the posthole alignments are the east-west or seaward face of the structure, then there is a 15-degree clockwise rotation around the first posthole location. However, with only two postholes to work with, these assumptions are not firm. Further excavation within the confines of the barracks seems essential to further delineate the width, length, and faces of the structure.

Seelye calls for a minimum of thirty days to complete the initial project. The new program of excavations should include trenching within the confines of the barracks before it is stabilized further with a cement floor and before other accessory features, such as sidewalks, are included. Trenches should certainly be undertaken outside the barracks as well.

The preliminary report, as Seelye states, is a working manual to aid future investigations of the barracks and bungalow site. My only criticism of the report, considering its preliminary nature, is that it is too extravagant in its use of full-page photograph reproductions; other illustrations also could have been reduced in size.

Historic Preservation: 1968 Report. Honolulu: Department of Land and Natural Resources, Division of State Parks, State of Hawaii, 1969. 20 pp., 10 plates, 1 chart. No price given.

Reviewed by RICHARD PEARSON, *University of Hawaii*

This volume reviews the accomplishments of the Division of State Parks, (Department of Land and Natural Resources, State of Hawaii) during 1968, a critical period in the development of a State-sponsored archaeological and historical preservation program. During the year, the Division of State Parks initiated archaeological projects at seven locations within Hawaii, under the direction of Francis Ching. In addition, work was begun on the restoration of Iolani Palace.

The report contains proposals for work at Kealakekua, island of Hawaii; Lahaina, Maui; Fort Elizabeth, Kauai; and, most significantly, includes plans for funding a comprehensive statewide historic preservation survey and a State of Hawaii Historical and Cultural Center.

The effect of developments within the Division of State Parks has been to stimulate vigorously the programs of the Bishop Museum and the University of Hawaii. The training opportunities from State-sponsored salvage work are of inestimable value not only for Hawaii, but also as teaching and learning situations for other Pacific scholars. State surveys and publications fill strategic gaps in saving and recording vanishing archaeological remains. Proceeding from the efforts of George Moore and Francis Ching, an attempt will be made to establish a foundation for cultural, historical, and scientific research relating to Hawaii's past that would extend the possibilities for studying Hawaii's culture history for resident and visitor alike.

The Maori-Polynesian Comparative Dictionary. Edward Tregear. New York and Oosterhout: Humanities Press, Anthropological Publications, 1969. (Photomechanical reproduction after the edition of Wellington, N.Z., 1891.) xxiv, 675 pp., English key to Maori words, appendix of Polynesian genealogies, index to geographical and dialectical references. $22.00.

Reviewed by DONN T. BAYARD, *University of Hawaii*

While Tregear's massive work remained a standard reference volume in comparative Polynesian linguistics for a considerable time after its appearance in 1891, and still finds limited use, I cannot foresee a wide demand for this recently issued photomechanical reproduction. The Maori portion of its content is covered better by the Williams dictionary, and the comparative examples provided in Samoan, Tahitian, Hawaiian, Tongan, Rarotongan, Marquesan, and Mangarevan (with frequent references to various other Polynesian and non-Polynesian languages) are, in almost all cases, more fully represented in the various dictionaries of these languages that have appeared over the past seventy years. Moreover, the comparative function of the work, which lacks any attempts at reconstruction, is largely superceded by the efforts in progress at the University of Auckland to reconstruct as large a portion of the total proto-Polynesian lexicon as possible, relying on sources considerably more extensive than those available to Tregear.

Other problems that the beginning student of comparative Polynesian linguistics will encounter in this volume are: the absence of any indication of vowel length on languages other than Maori and Samoan; the lack of indication of glottal stops in any language save Samoan (correspondents to Maori "k" are shown as "wanting" in Tahitian and Hawaiian, as are equivalents to Maori "h" and "ø" in Rarotongan, Maori "r" in Marquesan, etc.); and a lack of discussion of dialectical variation and sources of cognates selected in Paumotan (Tuamotuan), Marquesan, and Maori itself. Despite these shortcomings by contemporary standards and the volume's high price, the work has considerable value in terms of the amount of contextual data presented and as a check on later sources from the standpoint both of accuracy and of the amount of change that may have taken place in the vocabularies of the languages in question in the interim.

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Announcement from

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The *Borneo Research Bulletin,* a publication of the committee, has been established to implement the committee's goals of furthering scientific research in Borneo. It reports on current research and its results and contains short research notes summarizing a problem or area of research, an inventory of urgent research problems, brief news items, and a current bibliography. Anyone desiring to receive the bulletin, which at present is free of charge, please contact the editor. Also, anyone desiring information on the Borneo Research Committee and its activities, or who has a contribution to make to the bulletin, please contact: G. N. Appell, editor, *Borneo Research Bulletin,* Phillips, Maine 04966, U.S.A.

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